Factors affecting the extended role of the community pharmacist

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ABSTRACT

In recent years health care personnel have seen changes to their roles and responsibilities. A number of reports both from within the occupation and from government have recommended changes in the roles of community pharmacists so that they become more active in the provision of health care. The new roles and services suggested have become known as "extended roles" and include health promotion, treatment of minor ailments, provision of advice on prescribed medicines to the public and to other health care personnel. The aim of this study was to investigate the factors affecting the extended roles of the community pharmacist. The investigation initially took an exploratory approach and used unstructured interviews with pharmacists to ascertain influences on every day practice which could have implications on implementation of extended roles. The findings from the initial qualitative stage were incorporated into a national survey of community pharmacists. A number of inter-related factors were found to be important including work practices, financial considerations, people's expectations, relationships with GPs and pharmacists' own definitions of their roles. These findings are explained in terms of the progressive division of labour in the market for the provision of health care. Recommendations are made for extending the role of the community pharmacist.

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Thanks must also go to the pharmacists who discussed the issues concerning the extended roles with me, often after a busy day's work. This thanks is extended to the Local Pharmaceutical Committees and pharmacy companies who facilitated this project and to all the pharmacists who completed and returned the questionnaire.

I dedicate this thesis to my father and to Sandra, Halah, Brett and Beth. I thank them for their patience and their support.

DECLARATION

I declare that this thesis is based entirely on the original work of the author. Where published sources have been used, full reference has been made and all advice and assistance received has been acknowledged.

Any views expressed in this thesis are those of the author and not necessarily those of the University. I accept responsibility for any errors remaining within the work.

This thesis has not been previously presented for degree at this or any other University.

SIGNED: DATE:

Hooman Ghalamkari 30/3/99

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INTRODUCTION

The aim of this study is to investigate the factors affecting the extended roles of the community pharmacist by focusing on every day practice.

Chapter 1 sets the context of this investigation by providing a historical perspective of the development of the role of the pharmacist highlighting significant events such as the formation of the Pharmaceutical Society and the developments which led to the separation of prescribing and dispensing. In addition recent government and occupational policies are outlined.

The development and growth of pharmacy practice research is outlined in chapter 2. This chapter then describes the published literature relating to community pharmacists in Britain. In line with the development of pharmacy practice research, pilot studies are first described, followed by studies investigating pharmacists', consumers' and GPs' attitudes towards the extended roles.

Chapters 1 and 2 both highlight the occupational strategies used to influence the role of the pharmacist. Chapter 3 first outlines the concepts used by sociologists to explain influences on roles and activities of members of a particular occupation. The chapter then describes the sociological studies on pharmacy.

The influences on the methodology employed and the methods adopted for the investigation are described in chapter 4. A combination of qualitative and quantitative methods were employed in this study. The qualitative methods were used to gain an in depth understanding of the issues in the study. These issues were incorporated into a survey of pharmacists using vignettes. The chapter also reports on practical issues that the investigation encountered such as sampling and access to pharmacists. Analysis of qualitative and quantitative stages of the project are also described in this chapter.

The findings of the qualitative stage are described in chapter 5. These are referred to as descriptive and analytical themes. The chapter also describes the development of the questionnaire and the incorporation of the descriptive and analytical themes.

The initial analysis of the questionnaire are presented in chapter 6. This includes the response rate and demography of the sample, comparisons of the responders and non-responders, attributes of pharmacists, and the effects of the factors incorporated into the vignettes.

Chapter 7 presents more advanced analysis in the form of factor and regression analysis. Factor analysis was used to determine underlying themes in the statements used in the questionnaire. Regression analysis was used to determine the effects of a number of variables on pharmacists reported behaviours in interventions on prescriptions, advice giving and involvement in extended role activities.

Chapter 8 discusses the findings by referring to previous studies and to the sociological themes outlined in chapter 3. Finally recommendations are made to extend the role of the pharmacist and for future studies.

CHAPTER 1 DEVELOPMENT OF THE ROLE OF THE PHARMACIST

1.1 Introduction

It is important to contextulise the development of the role of the pharmacist, both in terms of factors affecting the occupation of British pharmacy and factors affecting the structure of health care in Britain. An awareness of historical processes of division of labour in the area of medicines as well as recent status raising strategies of the occupation add to an understanding of the current practice of pharmacy in Britain.

1.2 Pepperers, Spicers and Apothecaries

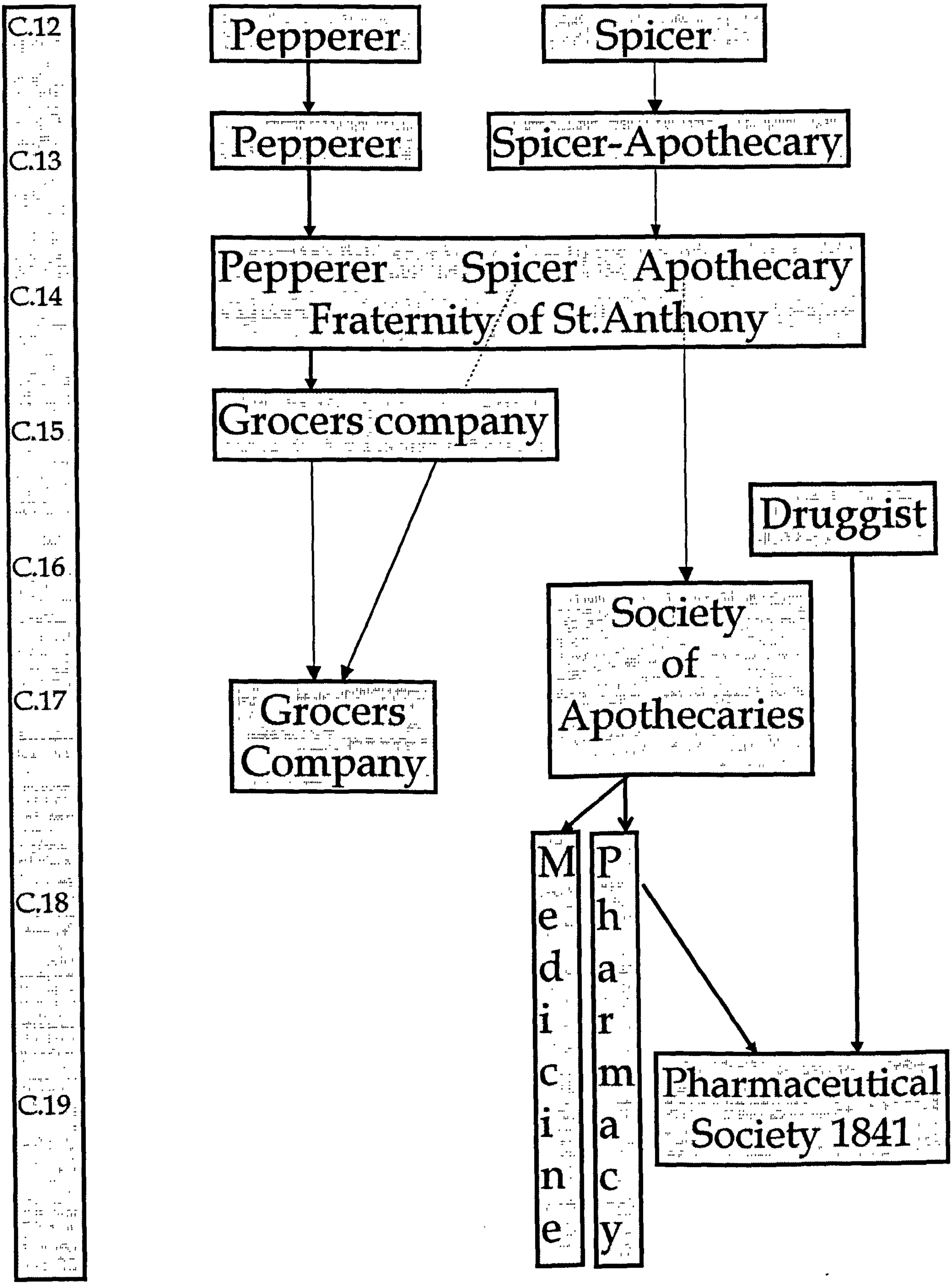
Preparation of medicines has occurred through out history. Records date back from the ancient civilisations of Persia, Egypt, Greece and Rome[1]. Although by the 12th century separate occupations could be identified on the continent, in Britain separation of the different groups took place much later[2]. In Saxon England there was no difference between physician, apothecary or surgeon. People dealing with remedies and medical matters were known as "Leeches". In Norman England the trade in remedies was carried out by "Mercers", By the 11th century there were records of "Spicers and Pepperers". The "Spicers" were retailers of spices and remedies and the "Peppers" were the whole sale merchants. "Spicery" were "substances mainly of vegetable or animal origin, almost invariably derived from the East or the Mediterranean and of high value in relation to their weight"[2]. By the 13th century retailers of spicery were known as Spicers or Apothecaries. In the 14th Century the Company of Grocers formed. From this

guild the pepperers and apothecaries formed a sub-group. Apothecaries were described as assistants to physicians and also independent preparers and dispensers of drugs who not infrequently took a hand in medical practice. The medical practice of the apothecaries was strongly opposed by the gentlemen physicians who had been educated at either Oxford or Cambridge. The apothecaries wanted a separate guild to gain monopoly over the selling of their remedies. Their lobbying of the monarch was eventually successful and in 1617 and "The master wardens and society of the art and mystery of the Apothecaries of the City of London" was founded[2]. This gave apothecaries monopoly over the sale of many products and rendered grocers and any other person as unlawful to sell these certain products. In 1647 the Society of Apothecaries was formed and was given monopoly over the dispensing of medicines against a Doctor's Prescription. Those grocers who traded in medicines and had not joined the Society of Apothecaries were known as "Druggists". "Chemists" were preparers and distillers of medicines. Both chemists and druggists continued to grow and flourish despite the monopoly given to the apothecary[3]. The newly formed Society of Apothecaries became embroiled in two fights. The conflict with the chemists and druggists over the monopoly to sell medicines and the conflict with physicians who were against the role of the apothecary as a minor medical practitioner[4].

Thus in the late 17th century, there were still several groups of people who dealt with medicines: apothecaries; physicians; physicians' assistants who were known as the dispensing chemists; druggists; and some grocers. The conflict between the occupations resulted in many law suits being brought up in court. The apothecaries sued physicians for opening dispensaries and sued the chemist and druggists for selling medicines to the public. Physicians sued the apothecaries for practising medicine. The apothecaries were successful in their conflict with the physicians, however they were not able to secure their monopoly of selling and dispensing of medicines at the exclusion of the chemist and druggists[4]. Chemists and druggists continued to supply cheap medication to the public as well as supplying the apothecaries. In 1694 it was claimed that the society of apothecaries provided medical care for 19/20 of the sick poor[2]. The lobbying power of the Society of Apothecaries brought about the Apothecaries Act of 1815. This act gave the Society power over professional standards and education of its members and forbade "unqualified persons i.e. chemist and druggist from judging disease by external symptoms. The chemist and druggists made amendments to the initial act to

preserve their rights to pharmacy[3]. They defined these rights as "buying, compounding and dispensing of drugs and medical compound, wholesale and retail". Historians have argued that with this act the chemists and druggists excluded all medical ambition and drew the boundary between the future medical and pharmacy professions[4,5]. Apothecaries became increasingly medical practitioners, and as they did so their original task of dispensing and selling of medicines passed into the hands of the chemist and druggist. By the early 1840s the Society of Apothecaries began to refer to its members as "general practitioners of medicine". The same period saw the formation of the Pharmaceutical Society of Great Britain . Its purpose was to represent the interest of chemists and druggists, to raise their profile with other professions and to promote education and training[56]. The early developments, from the 12th century to 18th century, in the evolution of pharmacy are depicted in Figure 1.

Figure 1 Development of the occupation of pharmacy from the 12th century to the 18 century[3]



1.3 Formation of the Pharmaceutical Society

The formation of the Pharmaceutical Society in 1841 was mainly as a response to the continued challenges of the Society of Apothecaries[6]. The Society of Apothecaries was also challenging the structure of medical organisation at the that time. Whilst unsuccessful at challenging the chemist and druggists, the Medical Act of 1858 incorporated apothecaries along with surgeons and physicians onto a single medical register. It is argued that this act went a long way in calming the tensions between physicians, apothecaries and surgeons as well as excluding the chemist and druggist[4,7,8]. The newly formed Pharmaceutical Society pursued legislation to exclude others from their occupation and to gain monopoly over the sale of medicines. These efforts culminated in the Pharmacy Acts of 1852 and 1868. These acts restricted titles of "pharmaceutical chemist and pharmacist" to those registered with the society. It was not until the Pharmacy and Poisons Act of 1933 where membership and registration of premises with the Pharmaceutical Society was required for individuals and organisations engaged in the selling or dispensing of listed poisons and controlled medicines[5].

Although pharmacy and medicine had separated as occupations both by title and legislation in the late 1800s, there was still a significant overlap of their roles. Chemists and druggists continued supplying medicines and recommending treatments for ailments, as did the apothecaries who had recently been incorporated into the medical profession. In addition there were many drug stores whose personnel were not members of the pharmaceutical society but who also dispensed and recommended treatments for ailments[5]. Both the pharmaceutical and medical occupations continued in their efforts of lobbying government to pass legislation which would provide monopoly of dispensing of medicines for one of the occupations at the exclusion of the other occupations. It was not until the National Insurance Act of 1911 that this conflict was resolved to a certain extent.

1.4 Separation of prescribing and dispensing

Holloway describes that the medical and pharmaceutical occupations were threatened by the early proposals of the National Insurance Act[5]. David Lloyd George proposed

that in return for weekly contributions made by workers and their employers, an insurance system could be set up which could provide welfare for people when they were out of work and provide primary medical care to insure against impoverishment due to illness[5,6,9]. Such a scheme already existed for people who could afford to make contributions to Friendly Societies who provided medical care. Lloyd George's proposal, however, was to extend the scheme to the proportion of the population who could not afford to join such Friendly Societies. He initially planned for the Friendly Societies to administer the scheme. The Friendly Societies' proposed responsibilities were to arrange medical and pharmaceutical services and to negotiate and administer the remuneration of these services. The medical and the pharmaceutical professions had suspicions of the Friendly Societies. The medical profession, because of the large number of members, were concerned that the Friendly Societies would employ doctors and be able to provide bargain price medical care at the expense of professional standards. This went both against the image of a gentleman physician and the drive for autonomy. The pharmaceutical profession were concerned that the Friendly Societies would organise their own dispensaries and factories producing medicines thus excluding pharmacists from the scheme altogether. The medical and pharmaceutical professions put forward similar amendments to the proposed Act. These amendments included the provision that the control of medical and pharmaceutical services should be in the hands of a government body and not of the Friendly Societies; that members of the occupations should be represented on the proposed government bodies; that the public should be able to choose their medical and pharmaceutical practitioner; and amendments concerning the income of those eligible for the scheme. In addition the medical profession required all matters concerning remuneration and discipline be dealt with by medically qualified members. Whilst the pharmaceutical profession required that all dispensing under the act should be under the direct supervision of a pharmacist and contracts for dispensing must only be made with a person, firm or corporate body registered with the pharmaceutical society.

The consequence of these amendments for the pharmaceutical profession was that it excluded the personnel of the drug stores from providing dispensing services and the threat from the Friendly Societies was removed. Another significant proposal put forward by Lloyd George in relation to the National Insurance Act was to separate dispensing from prescribing[5,6,9]. Lloyd George argued that experience from Friendly

Societies was that whenever doctors received an inclusive fee for attendance and medicines, the temptation was to use cheap drugs. Lloyd George argued that the separation of dispensing and prescribing would mean that where previously patients did not get expensive medicines when they were meant to, in the future they would. The pharmaceutical society welcomed the separation of dispensing and prescribing, which was also supported by the British Medical Association (BMA) and the General Medical Council. This separation, however, was opposed by the Society of Apothecaries whose members, the general practitioners, continued to charge an inclusive fee for medical attendance and medicines to their private patients. The BMA, despite their agreements with the principle of separation of dispensing and prescribing, took on this issue. They repeatedly proposed amendments which would allow doctors to dispense medication to their patients. This was one of the few battles that was lost and a special clause was inserted in the act to ensure that no arrangement would be made with a medical practitioner to supply medicines to insured people. The National Insurance Act of July 1912 then prohibited arrangements for dispensing of medicines being made with people or firms other than those entitled to carry out the business of a chemist and druggist i.e. a pharmacist. Thus apothecaries, grocers and physicians were excluded from dispensing medicines.

Although the Act went a significant way in giving monopoly of dispensing to the pharmacists, it only applied to the population who were insured under the Act. Dispensing by doctors, or their assistants, continued to be carried out for private patients. The only way to separate dispensing and prescribing was to reduce the private provision of medical care by extending the National Insurance system. The pharmaceutical profession were strong supporters of the extension of National Health Insurance.

The establishment of the National Health Service in 1948 effectively extended the N.H.I. scheme. Holloway reports that after 1948, 94% of the population obtained their medicines from registered pharmacies[5]. This effectively separated prescribing and dispensing in Britain, except in certain rural areas where doctors continued to practice as apothecaries and dispense medicines. The recommendation of treatments for ailments carried out by pharmacists was also reduced due to the free medical consultations available to the public after the National Health Service Act.

The N.H.I. and NHS acts changed many things for the public and the health professionals. There would be free consultations for everyone and the medicines needed would be dispensed at no cost to the patients. The post war period then saw dispensing, the preparation of raw drugs into medicines, becoming the main activity of the pharmacist, whilst treatment of disease and prescribing became the activity of doctors.

1.5 The growth of pharmaceutical technology and the "extended" roles

The post war period also saw the emergence of the pharmaceutical industry[5,6]. Advances in technology in the next thirty years led to the therapeutic revolution in which many new compounds were discovered. This period also saw the development of the compressed tablet machine which made redundant the compounding skills of the pharmacist. These technologies led to the development of new areas of knowledge which were promoted by pharmacists and became known as pharmacology and pharmaceutics. The dispensing of medicines remained the main activity of the pharmacist, but, the emphasis changed from the compounding of high quality drugs into medicines to the accurate and efficient supply of medicines against a prescription. The accurate dispensing of the medicine included the provision of instructions on how to take the medicine. The importance of this aspect of the dispensing procedure was reinforced by liability cases such as the Migril case . In this case a woman suffered from gangrene in both feet, which required extensive surgery, as a result of receiving an overdose of Migril prescribed for migraine. She was awarded £100,000 damages. The pharmacist was held liable for 45% of the damages awarded. It was judged that the pharmacist owed a duty of care to the patient. This duty of care was to ensure that drugs were correctly prescribed and accurately labelled with the dosage. It was judged that the pharmacist should have spotted the doctor's error and queried the prescription with the prescriber. Cases such as this legally established an additional role for pharmacists. This role was one of verifying and ensuring the correct prescribing of medicines and ensuring the correct labelling of instructions.

As the compounding of medicines was taken over by the pharmaceutical industry, questions about the need for a pharmacist and the future of the profession again surfaced[10]. The pharmaceutical profession produced a report which recommended a number of new roles for pharmacists[11]. In 1981 the minister for health, when addressing an audience of pharmacists, asked those present if they knew what the future for pharmacies in the community was[12]. Debates such as this led to the appointing of an independent committee of inquiry to look at the practice of pharmacy. This review of the pharmaceutical profession was carried out by the Nuffield Foundation in 1983 and superseded the earlier report on general practice pharmacy[11,13]. The terms of reference were to consider the present and future structure of pharmacy in its several branches, its potential contribution to health care, and to review the education and training of the pharmacist accordingly.

The report of the enquiry was published three years later in 1986. The report made 96 recommendations on all branches of pharmacy including hospital, education, industry and community. The fundamental message was that pharmacists, due to their education and training could contribute more to the provision of health care[13]. A number of extra roles were suggested for community pharmacists. The report referred to these new roles as "extended roles". These included advice to the public on minor ailments, ensuring sensible and effective use of medicines, providing domiciliary services to the house bound and elderly, advice to prescribers on medicines, diagnostic testing, health education and health promotion.

The Nuffield report initiated a number of changes within pharmacy. For hospital pharmacists a new career structure was created and "clinical pharmacy" which had been developing since the 1970s, was officially recognised. Social and behavioural sciences were recommended for pharmacy undergraduate courses and implemented with the aim of preparing pharmacists for their new roles[14]. The influence of the report on government policy concerned with pharmacy is evident in Promoting Better Health[15] where health promotion is officially recognised as a role for community pharmacy. The Nuffield report highlighted the lack of information on pharmacy practice and recommended evaluation of the "extended roles". This effectively started a new area of research in pharmacy which is referred to as "pharmacy practice research" (PPR). These two points were once again recognised by the government which provided funding for

research and development through the Pharmacy Practice Enterprise Scheme, and the Pharmacy Practice Research Resource Centre.

The Nuffield inquiry was independent of the occupation and the government. Although the inquiry concerned all branches of pharmacy, it was mainly prompted by the developments affecting community pharmacy. Following its report a joint working party of the Department of Health and the pharmaceutical profession was established to consider the future of community pharmacy. In 1992 the report of the joint working party was published[16]. This report incorporated consultations with many pharmacists and considered examples of good practice from all over the world. It made 32 recommendations for community pharmacy (See Table 1) . This report further increased the momentum of the development of the extended roles of community pharmacists.

Table 1 List of recommendations made in the Pharmaceutical Care report[16]

• The necessary changes to the NHS (General Medical and Pharmaceutical Services) Regulations to permit repeat dispensing should be introduced following consultation with the relevant professional organisations on detailed arrangements.	• A domiciliary medicine monitoring scheme should be introduced on a pilot basis.
• Regulations should be amended to remove the restriction that prescriptions may be conveyed by telephone only in cases of urgency and by reason of emergency.	• Where medicines are supplied by community pharmacies to nursing homes, hospices and similar institutions the scheme for provision of advice to residential homes should be extended to those institutions
• Pharmacy referral forms should be adopted and a research project established to assess their impact.	• The Department of Health should evaluate existing local initiatives with a view to establishing a suitable framework for distributing welfare foods and other medicinal and related products through community pharmacies, in liaison with district health authorities, family health services authorities, and local pharmaceutical committees.
• The scope for introducing pharmaceutical consultations in Britain should be pursued.	• Prescription charge payment certificates should be sold from community pharmacies.
• Each family health services authority should employ a pharmaceutical advisor	• Pharmacists should be encouraged to set aside areas for displaying material and providing advice and counselling.
• The range of medicines available for sale by pharmacists should be increased.	• Through family health services authorities, community pharmacists should be encouraged to participate more widely in health promotion activities and campaigns.
• Emergency supply of medicines, including prescription only medicines, by pharmacists should by included in the NHS.	• Community pharmacies should continue to contribute to health promotion by offering diagnostic and screening services, within a framework of proper professional standards and safeguards; and public funding should be introduced where such tests are provided at the request of a doctor or on behalf of a health authority.
• The introduction of arrangements enabling the pharmacist to select the medicine and dosage within agreed protocols following medical diagnosis or assessment should be encouraged; and they should be evaluated.	• Family health services authorities and local pharmaceutical committees should consider urgently with their district health authorities the scope for developing aseptic dispensing services in some community pharmacies in their areas; and the Department of health should establish one or more pilot projects to assess the feasibility and benefits of specialised pharmaceutical units serving high dependency patients in the community.

Table 1 continued

• Where the prescriber requests it, or where in the professional opinion of the pharmacist it is appropriate, compliance aids should be provided within the NHS.	• Extended instalment dispensing arrangements should be made available in England and Wales at the prescriber's request.
• All pharmacists should maintain patient medication records where they believe it will be of benefit to the patient to do so.	• Syringe and needle exchange schemes should be established on a national basis.
• One or more pilot projects should be established to investigate the scope for therapeutic monitoring within the community, the training and facilities required and the nature of the protocols within which pharmacists should work.	• Family health services authorities should liaise with the health care providers, social services departments and local pharmaceutical committees to ensure that there is at least one pharmacy in each area able to provide a comprehensive service of aids and equipment for disabled people.
• The formal adverse drug reaction reporting system should be extended to community pharmacists.	• Completion of appropriate additional training or some other demonstration of appropriate knowledge and skills should be required of pharmacists who undertake to provide additional services.
• Community pharmacies should have access to adequate facilities and be encouraged to provide a routine service for the disposal of unwanted medicines.	• The clinical audit process should be extended into community pharmacy and appropriate structures should be established at both local and national levels.
• Basic minimum standards for community pharmacy premises should be established in Regulations under Section 66 of the Medicines Act.	• We recommend that all family health services authorities should have access to pharmaceutical advice based on experience of community pharmacy.
• The Health Departments should discuss urgently with the pharmaceutical profession how best to implement measures to improve the standards of pharmacy premises.	
• Arrangements should be introduced to provide domiciliary pharmaceutical services for patients who are unable to use the pharmacy in person.	

Health promotion and health education, domiciliary visiting and responding to symptoms, services which had been recommended previously by the Nuffield report, were again emphasised. Recommendations were also made concerning every day practice such as the provision of consultation areas and improvement in the standards of premises. In addition a number of strategic recommendations were made. These included that Health Authorities should employ pharmaceutical advisors, that a number of medicines should be reclassified from prescription only medication (POM) to pharmacy medicines (P) as well as changes to NHS regulations to allow instalment dispensing of medicines. The report went further by introducing a new ideology for pharmacy called "Pharmaceutical Care"[17] which is also the title of the report. This new ideology behind the extended roles changed the emphasis of the newly established role of "safe and effective dispensing of medicines" to include the shared responsibility of achieving definite outcomes for patients' drug therapy.

For the purposes of this project the large number of extended roles suggested for pharmacists are considered in four categories:

- pro-active provision of information on general health
- pro-active provision of information and advice relating to the treatment of minor ailments
- pro-active provision of information on prescribed medicines to people, including information on side-effects and pro-active monitoring of prescriptions for drug interactions and appropriateness of drug therapy
- involvement in prescribing issues.

It should also be noted that the recommendations are a mixture of the extension of the existing advisory role eg treatment of minor ailments and the provision of completely new services such as diagnostic testing and pharmaceutical consultations.

A number of other developments have taken place since the start of this studentship which have an effect on this project. These more recent developments are described in the section below.

1.6 Recent government and occupational policies

The Nuffield and Pharmaceutical Care reports were both in line with the government strategies at the time of their publication. From the 1970s successive governments had looked on preventative measures as a means of cutting the increases in the cost of health care. Health promotion and health education were recommended for all health care personnel[15]. The aim of these programmes was to create a culture in which members of the public took more responsibility for their own health. This would both prevent ill health and reduce the utilisation of health care services. Health education and treatment for minor illness as recommended roles for community pharmacists were therefore in line with government policy and were endorsed in the government white papers of the late 1980s and early 1990s[15,18]. The recent white paper Choice and Opportunity has further encouraged the development of the advisory role in health promotion and treatment of minor ailments by officially recognising pharmacists as "the first port of call for health care advice", and by suggesting the possibility of local contracts with health authorities for the provision of such services[19].

Also in line with the government strategy of encouraging people to take more responsibility for their own health are the recommendation of the reclassification of a number of prescription only medicines to pharmacy medicines[16]. The reclassification of medicines has been aided by two policies. Firstly, a European Union directive (92/26 EEC) has changed the emphasis of classification of medicines. The directive states that "no medicine should remain a prescription only product unless necessary for reasons for safety"[20]. Secondly, since the late 1980s the process of reclassification in the UK has also been made easier[21]. The reclassification of medicines has particularly accelerated in the 1990s. This is partly due to the pharmaceutical industry's realisation of the self care market and the RPSGB's list of medicines suggested for reclassification[22,23]. Although the direct influence of reclassification of medicines on health care costs is currently not totally understood[23], it is thought that this global trend will continue[24].

The reclassification of medicines places a greater emphasis on the role of pharmacists in recommending treatments and a greater demand on the time of the pharmacist in dealing with increased requests. Three pharmaceutical policies are designed to address this situation. Firstly, social and behavioural sciences have been introduced to the

undergraduate course and post graduate continuing education has proliferated in pharmacy with the establishment of the Centre for Pharmacy Postgraduate Education (CPPE). The aim of this development is to improve pharmacists' quality of provision of advice[25]. Secondly the Royal Pharmaceutical Society made an ethical requirement in January 1995 for each pharmacy to have written protocols for the procedures to be followed when selling or recommending medicines. Thirdly, all pharmacy staff who are involved in selling medicines are required to be trained or undergo training in the sale of medicines[26]. These measures were put into place to ensure pharmaceutical control and supervision of the sale of pharmacy status medicines whilst rationalising the demand on the pharmacist's time.

As opposed to the indirect cost savings produced by pharmacists' roles in treatment of minor ailments and health promotion, the recommended roles for pharmacists in prescribing are claimed to produce direct cost savings by reducing prescribing costs[13,16]. Reduction of the NHS drugs budget became a particular issue in the 1980s. The government introduced a number of measures with limited success in reducing prescribing costs[27]. These included: the selected list which resulted in the exclusion of expensive brands on NHS prescriptions; provision of information to GPs on prescribing costs such as bulletins from the Medicines Resource Centre and the Consumer Association as well as summary of prescribing data (PACT) from the Prescription Pricing Authority; indicative prescribing amounts for each practice aimed at keeping prescribing expenditure within a budget; and provision of incentives which allowed practices to retain a proportion of any savings made on prescribing costs for improvements to practice facilities[27]. The appointment of pharmaceutical advisors to health authorities was in line with the government strategy of reducing prescribing costs and the new pharmaceutical advisors administered the schemes mentioned above[28]. Review of literature on changing prescribing behaviour has suggested that instead of imposed fiscal restrictions, such as those mentioned above, educational strategies are more successful at producing changes in prescribing behaviour[28]. One of the educational strategies has been increased collaboration between community pharmacists and GPs[16,27,29-31]. More recently a specific role has been suggested to change prescribing behaviour by passing on relevant information, motivating GPs, and providing management support. Once again pharmacists have been recommended for these roles[28].

Associated with issues of prescribing are people's medication-taking behaviour, not least because they impact on the success of treatments[32,33]. Pharmacists' pro-active provision of information and discussion of people's concerns, worries and anxieties on prescribed medicines has been recommended as a strategy for ensuring the appropriate medication taking behaviour[13,16]. More recently a report of a working party commissioned by the RPSGB has highlighted the issue of medication taking behaviour and encouraged debate[33], thus promoting the role of the pharmacist in this area[32].

As well as policies concerning each area of the extended roles, there are recent policies introduced since the start of this project which have an effect both on the occupational and health care environment in which pharmacy is practiced. Firstly the occupation launched the "Pharmacy in a New Age initiative" in 1996[34]. This was initially a consultation exercise involving all members and branches of pharmacy. The consultation exercise was followed by strategic planning to extend the role of the pharmacist. The report of this exercise is entitled "New Horizons" and as well as recommending a role in health promotion and treatment of minor ailments introduces the concept of medicines management for community pharmacists[35]. Medicines management essentially recommends a role for pharmacists in monitoring patients' chronic conditions and within agreed protocols to make changes independently to drug therapy. The Pharmacy in a New Age initiative led to the Department of Health holding its own consultation exercise on community pharmacy, the report of which is pending.

Secondly, a series of government white papers have highlighted the current government's policy on organisation of health care. These policies have followed consultations with primary health care professionals. The white paper "Choice and opportunity. Primary care: the future"[19] heralds legal changes which enable the piloting of new ways of delivering primary care. These pilot projects could explore new models of providers of primary care services, including pharmacy organisations. In addition, new ways of recruitment, payment and distribution of primary care providers are open for exploration. The second white paper "Primary care: delivering the future"[36] makes more detailed recommendations, including developing primary care teams, developing multi-disciplinary education, and increasing support for research. The third paper "The National Health: a service with ambition" provides a mission statement for the NHS[37,38].

The implication of these government proposals for the extended role of the pharmacist are clear. Many of the extended roles recommend close collaboration with GPs. Interrelationships of pharmacists and GPs are highlighted, in particular collaboration relating to prescribing issues[31]. More significantly, the second white paper announced a review of the prescribing and supply of medicines, with suggestions of changes to the Medicine Act to allow other health professionals to prescribe prescription only medicines. This report is pending.

The latest government white paper "The New NHS: Modern Dependable"[39] has abolished the structure of fundholing practices introduced by the last government. In its place will be new primary care organisations called Primary Care Groups who will be responsible for determining population needs and providing some of the services. These new organisations may provide opportunities for the extended roles of pharmacists to be officially implemented. The most beneficial of pharmacists' extended roles to the new primary care groups being that of provision of prescribing support. The white paper also insists on joint planning of primary and secondary care as well as health and social care in production of Health Improvement Plans for the local area. Finally, the white paper "Our Healthier Nation" sets national targets for coronary heart disease and stroke, cancer, mental health and accidents[40].

The government papers described above have major implications on the health care environment which impacts on the practice of pharmacy. Pharmacy is also practiced in a consumer environment and thus is affected by government policies in this area. There are two particular policies that have caused much concern in pharmacy over the past four years. In the same year that the Pharmaceutical Care report was published, the National Audit office published a report on community pharmacy[41]. Its focus was the distribution and remuneration of pharmacies. It reported that in certain areas there were a high density of small pharmacies, and that in these areas upto 25% of the pharmacies could close without a loss of access to services for the population. These clusters of pharmacies had developed due to the preferential remuneration system directed at small pharmacies. The report suggested changes in the remuneration system to encourage larger pharmacies which would lead to more rational distribution of pharmacies[41].

The second policy to have an impact on the commercial environment of pharmacy is The Resale Prices Act of 1964, in particular the challenge of the exemption of medicines from the act. This act prohibited the ability of manufacturers to administer price conditions requiring retailers to sell products at a price determined by the manufacturer. This act effectively started the trend for the development of large out of town supermarkets, who could sell products at a cheaper price to the consumers at the expense of the small retailers. In 1970 an application was made for the exemption of medicinal products from the requirements of the Act. The courts agreed to exempt OTC medicines from the prohibition. The reason being that many neighbourhood pharmacies would close if OTC medicines were sold at a discount by larger retailers and this would be against the public interest[42,43]. It is this exemption that has recently been challenged by large supermarkets reasoning that this professional monopoly is not in the interest of the consumer. At the time of writing of this thesis, the restrictive practices court had decided to reconsider the exemption and their decision on maintenance of RPM is pending.

In summary, it can be seen that the recommendations for the extended roles of the pharmacists have consistently been in line with government policies of reducing health care costs and have been officially endorsed by the government white papers. The occupation has continued to promote the extended roles both to its members and others by consultation exercises and production of a number of reports. Occupational policies of adjusting education and regulations concerning the practice of pharmacists have also shown the occupation's readiness in principle to extend their roles. Whilst the current and future contribution to healthcare has been used to justify the position of pharmacy in the market for medicines. More recently the government policies concerning the organisation of health care have encouraged the development of roles of a number of health care professionals.

1.7 Summary

This section has shown the evolution of the role of the pharmacist and what is now known as the occupation of pharmacy. A more detailed discussion, although fascinating, is beyond the scope of this thesis. Appendix 1 provides a detailed chronological list of events and their significance. The evolution has been influenced by

the occupation's struggles with a number of other occupations over boundaries relating to the work of its members. These struggles led to the formation of official occupational organisations who used a number of strategies to further the interest of their members. The strategies that were initially used were the passing of legislation to further the occupations monopoly over the sale of medicines. This activity also extended into amending other proposed legislation which had a bearing on their activities. Other strategies included the establishment of trading associations which ensured high profits for medicines. Once a certain amount of legislative authority had been established, the Pharmaceutical Society sued parties challenging the monopoly of pharmacists. The legislation also provided pharmacy with a certain amount of bargaining power with which other occupational interests could be pursued. As the ideology of the society started to change and started to challenge monopolies, education was used to legitimise the right of the members in the supply of medicines. The government's proposed legislation for the state provision of health care was used to separate prescribing and dispensing officially. Since then pharmaceutical policies have ensured that they are in line with government strategies. Educational standards and qualifications have also been raised, with the occupation becoming an all-degree occupation. Liability cases were used to give pharmacists a new responsibility for ensuring correct prescribing and usage of medicines.

The growth in pharmaceutical technology and the discovery of new entities has produced a new area of pharmaceutical knowledge. This has been extensively promoted both to the government and the occupation through the publication of a number of reports recommending "extended roles" for pharmacists. The extended roles have been endorsed by successive governments since they claim to produce health care costs savings. More recently, government policies have encouraged the development of new roles by introducing changes to the delivery of health care.

It is notable that the extended roles recommend a role for pharmacists in traditionally medical affairs, an ambition that the occupation had disclaimed in its early history. The strategies used in the early history were of confrontation with the medical profession over the monopoly to sell medicines. Recent strategies, however, recommend collaboration with the medical profession. Finally, the NHS Act and state provision of

health care were used to establish the current role of the pharmacist. It is the shift to the public finance of health care which is establishing pharmacists extended advisory roles.

CHAPTER 2 PHARMACY PRACTICE RESEARCH LITERATURE ON COMMUNITY PHARMACY

2.1 Introduction

The Nuffield and Pharmaceutical Care reports commented on the lack of information on the practice of pharmacy and the need to evaluate the proposed extended roles. These reports led to the development of pharmacy practice research (PPR), a term which could be used to describe this project[44] . To contextulise this project and the influences on its developments, it is important to consider both the development of PPR and the literature investigating the extended roles of pharmacists.

2.2 Development of Pharmacy Practice Research

Research in the discipline of pharmacy has a long history which dates back to the 1800s with the formation of the Pharmaceutical Society and the annual British Pharmaceutical Conference. Noyce at a recent conference noted that until the 1960s research in the discipline consisted of issues to do with the science of discovery and formulation of drugs and medicines[45]. This was in line with the new areas of pharmaceutical knowledge of pharmaceutics and pharmacology. Research in the practice of pharmacy started in the late 1960s with reports of medication errors. Pharmacy practice research (PPR) was officially recognised as a sub discipline in the late 1970s where a special PPR

session was held at the British Pharmaceutical Conference (BPC). The Nuffield report due to its difficulty in obtaining information relating to pharmacy encouraged the development of PPR. It recommended that schools of pharmacy should create academic chairs in the discipline of Pharmacy Practice[13]. By 1994 there were 13 chairs in Pharmacy Practice. Another important development was the formation of the College of Pharmacy Practice in 1981. One of the aims of the College was to promote and facilitate research into the practice of pharmacy and to publish results. PPR was also given a boost in 1990 when the Department of Health recognised the need for research in pharmacy practice and funded the Pharmacy Practice Enterprise Scheme[15]. This scheme aimed to provide training for pharmacists through several awards. The schemes included training awards, studentships as well as project development grants. The Enterprise scheme also instituted the Pharmacy Practice Research Resource Centre to help pharmacists undertake research projects. This studentship is funded by the Enterprise scheme and has benefited from the advice of the Pharmacy Practice Research Resource Centre.

The Nuffield[13] and the Pharmaceutical Care[16] reports started a special interest in PPR for community pharmacy since they recommended the implementation of many of the extended roles only on favourable evaluations.

In summary pharmacy practice research (PPR) is a recently new discipline. This is reflected in the methodologies adopted and scope and size of the studies carried out to date[46-50]. Its growth has paralleled the calls for information on pharmacy practice and in particular the calls for the favourable evaluations of the extended roles of pharmacists. The practice setting, the problem based nature and the culture of evaluation of PPR has been compared to the discipline of Health Service Research (HSR). Researchers have even described pharmacy practice research as a sub section of health service research[44,51] . However, there are important differences which have been noted when comparing the two research disciplines. In particular the relationship with current practice, whereas HSR is generally critical about practice developments, PPR on the whole is favourable to practice developments[49]. These arguments may seem irrelevant to this project, however, it should be noted that the host department is a centre for HSR. In addition the initial influences on this project were the recommendations for the extended roles and a sense of frustration with which they had not been implemented. The influences of HSR led to a slight change in emphasis of the project. This project has subsequently

taken a step back from the occupational efforts to extended the role of the pharmacist[46] to investigate the every day issues affecting pharmacists' activities.

2.3 Current practice and evaluations of pilot projects

The pharmacy practice research articles reviewed in this section are initially related to the advice giving role of the community pharmacist. The advice giving role is central to the majority of the "extended roles" and concerns many areas of pharmacy practice. This is reflected in the articles below which do not provide a narrow definition of what they mean when measuring "advice"[52]. The term is used in many situations including: in relation to giving instructions on how to take medicines generally[53] as well as providing specialist information on specific types of medicines[54]; recommendations for treatment of ailments[55], health education and health promotion[56].

The early pharmacy practice articles were generally concerned with describing the activities of the pharmacist or were evaluations of pilot projects which aimed to increase the advisory role of the pharmacist. The proposed extension of the advisory roles of pharmacists were not exclusively researched by pharmacists. A number of other organisations also investigated the proposed extension of these roles[57-61]. These researchers highlighted several issues by focusing on current practice and quality of advice. It was found that pharmacists' current practices were not adequate in terms of the standards set by the RPSGB and the advice was not always reliable. In addition not many people asked the pharmacists for advice, despite the claims of the occupation[62].

These articles had several implications on the development of PPR. Researchers then focused on the extent of current practice to gain an understanding of influences which could be manipulated to increase the advisory roles and also to record base line data with which they could compare any changes in practice[63,64]. Such articles are typically presented as audits of practice[65-70].

The following section introduces advice relating to health education, responding to symptoms and provision of information on prescribed medicines. Each section reports the extent of current practice and the proposals for the extension of each area. These

categories are maintained throughout this chapter which then goes on to describe pharmacists', consumers' and GPs' attitudes towards the proposed roles of the pharmacist.

2.3.1 Health Promotion

In many of the research articles described below no formal definition of health promotion or health education in terms of pharmacists activities are offered. However in most cases where health promotion is used it refers to the provision of general health advice not related to medicine supply.

The extent of current practice in relation to provision of health promotion advice has been difficult to quantify, not least because of the lack of definition but also because of the low number of such consultations. The reports have been based on pharmacists' and consumer's estimates in surveys[71-74] and also on pharmacists' self reporting diaries[56,75]. Pharmacists have estimated between 3-5% of their consultations to be on general health matters[56] and only 7% of consumers in a major study reported asking for advice on general health matters[76].

An investigation of the quality of health promotion / disease prevention component of the pharmacists advice was carried out by Smith[77]. Consultations of clients and pharmacists were taped recorded and transcribed into text. The consultations were then judged on nine externally developed criteria including information gathering, explanation, appropriateness of the advice, and health and disease prevention. The consultations were judged very poorly on the criteria of health and disease prevention. It was found that pharmacists did not take the opportunity to advise clients on health matters in their consultations. For example when discussing the treatment for a cough, pharmacists did not take the opportunity to give smoking cessation advice or when recommending vitamin supplements, the diet of the client was not discussed. Smith recommends additional training in health promotion. The finding of a passive role in health promotion was confirmed in the consumer survey carried out by Morrow et al who reported that the vast majority of consumers had not received unsolicited advice[71]. Covert research was used to assess the quality of pharmacists advice in a study by Bahra et al[78]. Researchers posing as members of the public visited 58 pharmacists who

had additional training on smoking cessation, the advice given by this group of pharmacists was compared to the advice given by 42 pharmacists who had no additional training. It was found that the pharmacists who had additional training performed better in terms of asking about smoking behaviour, encouraging the person to come back for more support, and provision of advice based on guidelines.

Despite the dearth of studies looking at the health promotion practices of pharmacists, there has been a considerable number of projects aimed at increasing the health promotion activities of pharmacists[78-90]. . These projects invariably point out the advantages of the pharmacy as an outlet of health promotion. The advantages include the situation of the pharmacy in the community, the convenience of not having to make an appointment to speak with a pharmacist, the informal atmosphere of the retail setting, the number of visits made to the pharmacy every day and the pharmacists historical role of providing advice[75,87].

The evaluations of the pilot projects of health promotion formed the majority of the early PPR articles on community pharmacy. Two of the early pilot projects are described below to demonstrate the experiences of researchers in attempts to extend the role of pharmacists in health promotion. These documented experiences are important when considering the factors affecting the extended roles of pharmacists.

Panton in 1981 carried out a study in the West Midlands Regional Health Authority to investigate the role of the community pharmacist in health education[80]. The specific aims of the study were to: evaluate the acceptability of the public to health promotion material being displayed; to measure how much interest the public showed in such displays and; to investigate the role of the pharmacists in health education to see to what extent he/she could help patients with particular aspects of health education. There were four health promotion subjects: safety of medicines; dental health; prevention of coronary disease (including blood pressure testing); and patient compliance. The information was provided by a combination of posters, leaflets and audio-visual displays.

The general conclusions provide interesting topics for further research. It was noticed that the amount of time the pharmacist spent on the counter providing advice was

proportional to the amount of interest shown in the scheme by the public. Most of the pharmacists thought that to ask the public for their views was too intrusive. The pharmacies that reported low or no response at the beginning of the study remained consistently low throughout. It was noticed that many of the pharmacists held firmly the view that they were there to dispense and their staff to attend to the public. The author states that the attitude of the pharmacist to health education is a very important factor and that if pharmacists do not view their place to give advice on anything other than medication then they are not suited for a role in health education which involve non pharmacy related topics. In reflecting on the practical considerations the author recommends that only one theme should be employed. The themes should be chosen according to the relevance of the particular pharmacy and its customers, since the onus is placed on the customers to request the advice.

The second pilot project described here is a study aimed at enhancing the role of the pharmacist in the care of patients with hypertension[83]. The study was carried out in the northern region where there is a high incidence of coronary heart disease. Patients with suspected hypertension, identified by the presentation of prescriptions for certain drugs, were approached and asked to participate in the study. Home visits were made by the pharmacists. Knowledge of the person's prescribed medicines and high blood pressure were assessed by the pharmacists. Also knowledge of other risk factors were considered e.g. family history, body mass index and smoking habits.

Once again researchers experiences are very valuable in the context of this thesis. The protocol of the study had gone before the local medical committee who had raised three issues. Firstly the committee raised the issue of confidentiality and access by the pharmacist to medical records. Secondly it was felt that advice on lifestyle changes should neither be supplied by doctors or pharmacists. Thirdly, the committee stated that the pharmacist should not undermine the doctor's position by giving the impression that care was being improved as a result of pharmacists' input[83].

The pilot projects described above were not only projects aimed at establishing the new roles of pharmacists. In view of the recent development of pharmacy practice research, these early studies piloted methodologies of measuring pharmacists activities and behaviours. They also set the agenda of investigations of pharmacists' new roles. The

pilot projects aimed to measure the number and nature of the advice provided, consumer views of the advice and their accessibility to this new sources of health education. The focus of the evaluations were processes involved in increasing the advisory role of the pharmacist and little attention was paid to the outcomes of pharmacists' advice. The methodologies that were used also had several limitations. These include the method of selection of pharmacists, the problems of self reporting and the sample sizes used.

The more recent health promotion projects tried to incorporate the findings of the early pilot projects, in particular addressing issues such as training and payments. These projects also recognised the limitations of the studies described above by paying attention to study design and sampling techniques. However, the methodologies and the focus of the evaluations remained the same[87,90]. These relatively more robust projects further influenced other health promotion projects to be established in other areas of the country. Anderson in her telephone survey of pharmaceutical advisors in England, reported that 57% of health authorities had some sort of health promotion projects involving community pharmacists[91].

Many topics of health promotion have been addressed. These include: diet; safety of medicines; dental health; coronary heart disease, adherence to medication; smoking cessation; family planning; foot care; hypertension; cholesterol testing; body mass index; body fat assessment; HIV and supply of injecting drug equipment; blood glucose measurement; travel information; asthma; infestations and; sun and skin protection[78-90].

In summary the articles describing the health promotion role of the pharmacists' generally refer to advice or services not related to the supply of medicines. It is not surprising therefore that pharmacists activities in this area are reported to be very low. These activities have been quantified using pharmacists' estimates, self reporting diaries and from surveys of consumers. The quality of pharmacists' advice has been determined by using covert research or using tape recordings of consultations which were judged by on a number of criteria by a panel. The early pilot projects, although limited in terms of design, highlighted several areas for further consideration. These included the need for training, pharmacists' attitudes, financial considerations and attitudes of GPs. Subsequent projects developed taking into account some of the issues

identified by the early pilot projects. Since these projects a large number of health promotion projects have developed covering a range of topics. These projects are small in nature and limited in ambition. The evaluations of the projects have focused on measuring the number, nature and process of the advice. Little work has been undertaken to determine the benefits of the advice.

2.3.2 Responding to symptoms

As opposed to general health advice for which the pharmacist is not a significant source of advice, one of the sources of advice for people who want to self medicate is reported to be the pharmacist[76,92,93]. The role of the pharmacists in giving advice in this area is many fold: some people will present with general symptoms and will ask for diagnosis and treatment advice, other people will have self diagnosed and will want a recommendation for a specific product. Others will have been recommended a specific product and according to the duty of care the pharmacist will have to make sure that the product sold is appropriate for the person[26].

As mentioned in the previous section, the majority of the early articles tried to quantify the pharmacists activities in terms of providing advice. However, these early articles did not make a distinction between the different activities in this area of the pharmacists' work. Instead they recorded requests for advice or sales with accompanying advice.

There are reported to be between 5-20 incidence of advice per day in a pharmacy[55,56,94,95]. The onus is on the clients to ask for advice[56,96,97].

A wide range of topics of advice have been reported by researchers. Coughs, eye problems, skin rash, diarrhoea, sore throat, constipation, cold, vomiting, ear problems are the most common[55,95,98]. The findings generally correspond to other studies where the nature of the products purchased from the pharmacy have been studied[95,97,99,100]. Other studies involving surveys asking patients what topics they have asked for advice in a pharmacy[101,102] or are willing to ask for advice[76] also show that the topics mentioned above are indeed the most popular topics for which people go to a pharmacy.

The pharmacist is not the only source of advice in the pharmacy. Pharmacy assistants are also a source of advice in a pharmacy. Hardisty[97] asked whether the pharmacy assistant was taking over the role of the pharmacist in giving advice and recommending treatments. Of the 15% of medicines recommended, 9 % were recommended by the counter assistant. The observations in his study of 225 pharmacies suggested that when people wanted advice, the pharmacist was busy and the assistant provided the advice. The involvement of assistants in provision of advice has also been noted by consumer association who have consistently expressed concern over the provision of advice with the sale of medicines[58-60]. Despite the involvement of assistants in responding to symptoms, there is a lack of studies exclusively investigating advice giving by assistants[52]. Studies in which advice by pharmacy assistants has been considered, have compared the advice provided by pharmacist to the advice provided by pharmacy assistants. Although pharmacy assistants were found to deal with more requests for advice, the advice provided by pharmacists was shown in better light[56,103].

The nature of the advice usually takes the form of a recommendation for a sale of a product, referral to another health care professional, general health advice, no treatment or a combination of the above. Studies have reported a referral rate of 12-26%, usually to the person's GP[55,56,95,104] . There are however variations reported in the referral rate by pharmacists for different topics[55,94].

Several studies have investigated the quality of the advice given by pharmacists. Different methods have been employed to assess the quality of advice. The early research whose primary purpose was to quantify pharmacists' consultations or non-prescription medicines sales made subjective judgements on the quality of advice provided[55,92,95]. More recently covert research in which a researcher presents with common symptoms in the pharmacy has been the most widely used method[58-60,68,105,106]. The quality of advice was judged according to the codes of ethics for responding to symptoms and by subjective judgements. Two studies combined the responses given by pharmacists to hypothetical case studies and actual responses given to covert researchers presenting with those symptoms[68,105]. These two studies found that whilst pharmacists had the theoretical knowledge to treat certain conditions, this knowledge was not always applied to practice. A satisfactory explanation of the reasons behind this variation is not provided. Only one study has tried to investigate actual outcomes of

pharmacists advice[107], the researchers found a high proportion of the advice was reported to be beneficial.

The most comprehensive assessment of the quality of advice provided by pharmacists was carried out by Smith[77]. Tape recorded consultations of pharmacists with people were transcribed and the quality was judged on certain characteristics whose assessment by each member of the panel were similar. The technique employed reduced the subjectivity of the assessment of the advice. Smith found that the quality of advice was either very good or very poor . An explanation for this variation was not provided.

Only one study has tried to investigate the reasons behind the variation reported in the pharmacists' advice giving behaviour. Using tape recordings of consultations as well as non-participant observations, Bissell et al suggested that personal characteristics of the pharmacy staff more readily explained the variation in provision of advice and supervision of the sale of medicines than physical characteristics such as the layout of the pharmacy, the number of assistant etc[108,109].

There have been several attempts at increasing the role of the pharmacist in provision of advice on treatment of minor ailments and supervision of the sale of medicines. These include the formalisation of referrals to general practitioners[110], audits of current practice[68,105] , provision of counselling areas[111], and development of guidelines for the treatment of conditions[112].

In summary the articles have tried to quantify the role of the pharmacist in the provision of advice on OTC medicines and treatment of minor ailments. The majority of the articles did not make a distinction between the different activities in this area, nor did they distinguish between unsolicited advice and advice requested by people. As well as these limitations the studies can not be generalised to other sites, due to the problems associated with the methods that they used. These include the non-random selection of the pharmacies, the small sample sizes used and the reliability of self reporting and estimates of activities. Absent from the early studies are the role of the pharmacy assistants in provision of advice and studies investigating actual outcome of the advice provided by pharmacists. Pharmacists' consultations have been recorded

using a number of methods and judged on several criteria. The quality of advice has consistently been found to be inadequate. Only one study has investigated the variation in the pharmacists advice. Attempts at increasing the role of the pharmacist in this area have included the use of referral forms, installation of counselling areas, joint guidelines between GPs and pharmacists and audits of current practice.

2.3.3 Provision of information on prescribed medicines and involvement in prescribing issues

Relatively little attention has been paid to provision of information on prescribed medicines[52]. Pharmacists see the provision of information on prescribed medicines as part of the dispensing process[26]. The extension of the advisory role of the pharmacist in this area, however, extends beyond the provision of information reinforcing the labelling instructions such as "to be taken with food, avoid alcohol" to the pro-active provision of information on the signs and symptoms of side-effects, and what to do if people experience side-effects.

Once again the studies have attempted to quantify the incidence of advice with prescribed medicines. These have reported considerably varying incidence of provision of advice and information which range between 5% to 40% of total number of prescriptions[53,55,95]. Studies have reported a short time spent on provision of information on medicines. The average time spent on providing information is reported to be between 24 to 70 seconds[52]. Pharmacists have reported the lack of time and workload as a barrier towards provision of information on medicines, however, this has not been found in studies exploring these factors[52].

A number of projects have been established to increase the provision of information to people on prescribed medicines as well as influencing prescribing. These include formal advisory services[113], adverse drug reaction (ADR) reporting[114-116] , audits of current practice [117], formal medication reviews[118], services to residential homes[119-122] , continuing education with pharmacists and GPs[123-125], use of patient medication records[126-128], instalment dispensing[129], pro-active interventions on prescriptions[127,130-134] and domiciliary visits[135-138].

The projects mentioned above are similar in that they advocate an extension of the dispensing role of the pharmacist. A number of other projects have been established which advocate activities for pharmacists independent of the dispensing role. These include pharmacists providing advice and information on prescribing to GPs, either on a one off basis[139,140], or as an employee of the practice [141-145]. Despite the relatively numerous projects of this nature, only a handful have been evaluated to any extent.

In summary relatively few studies have looked at the role of the pharmacist in providing advice and information on prescribed medicines at the point of dispensing. The studies indicate a low incidence and a short consultation time of advice with prescriptions. There are no predictive factors of the provision of advice. A number of projects have been established to increase this role of the pharmacist associated with dispensing of prescriptions, in addition a number of projects have been established to allow pharmacists to influence prescribing.

2.4 Pharmacists' attitudes towards their role

2.4.1 Introduction

Pharmacists' attitudes towards their new roles were highlighted as an important factor in the pilot project evaluations. This has led to the investigation by many researchers of pharmacists' attitudes towards the extended role(s) as a whole or toward one of these roles. This section first reviews the studies investigating the views of pharmacists towards the suggested new roles. The section then discusses pharmacists' opinions on certain developments and suggestions which are aimed at increasing their involvement in the new roles. The factors predictive of pharmacists' attitudes towards the extended roles are then outlined. Finally the section presents a summary and critique of the literature reviewed here.

In general pharmacists have supported the concept of the extended roles[146-150]. Views on each area of the extended roles, however, have been shown to vary.

2.4.2 Involvement in health Promotion activities

Traditionally pharmacists have not considered health promotion as one of their key roles[56,151] and this is reflected in the low number of health promotion contacts with people regarding topics not concerning medicines, such as diet and alcohol abuse[56,73,152]. Increasingly, however, in accordance with the calls for an advisory role, pharmacists have attached more importance to this role[153,154] . The advantages of involvement in health promotion to pharmacists include improving their relationships with their clients, and being involved in social good, increased job satisfaction and an improved professional image[154] . There are different views however on the extent of involvement in health promotion. Some pharmacists consider their traditional advice giving role and dealing with client queries especially regarding medicines, as health promotion and in that sense they are happy with their involvement. Specifically pharmacists seemed to be happy to display leaflets[81,154] , to act as information centres and to sell health promotion products such as nicotine replacement therapy[154]. Other pharmacists see health promotion as including the provision of diagnostic testing and these pharmacists express concern about involvement in this area[155]. Involvement in projects on sensitive topics also produces a less enthusiastic response e.g. depression, alcohol misuse and HIV and Aids prevention[85,154].

Researchers investigating the barriers to increased involvement have concluded that pharmacists do not take the opportunity to deliver health promotion advice to clients[77,156]. Indeed health promotion consultations are reported to be reactive to clients' queries rather than pro-actively initiated by the pharmacist[73,152]. Researchers have stated that pharmacists' approach to dealing with health related queries comes from a bio-medical, reductionist approach which manifests itself in product orientation and pharmacist led consultations. That is, once asked to deal with a query, pharmacists take the initiative in the consultation and ask closed questions to determine the right product to be recommended. As opposed to allowing the client to talk about his/her worry and considering non-pharmaceutical solutions[73,152,154,157]. Extra training in health promotion and communication skills is recommended by researchers to overcome the traditional approach of pharmacists to health promotion[73,152,154,157].

Pharmacists, themselves, also cite extra training and increased communication skills as important factors in increasing their involvement in health promotion[56,158] . Other factors include a feeling of isolation and lack of support from health authorities. Funding of a pharmacy was also an important factor in determining the extent of pharmacists' involvement in health promotion. Pharmacists cited a need for additional remuneration to cover the costs of providing facilities for health promotion and to cover the costs of any additional training[56,158] . Pharmacists although citing one of the advantages of involvement in health promotion as being improved client relationships are also concerned about its potential damaging affect on customer relationships. Pharmacists were concerned that clients would not appreciate interference in their lives by a pharmacist and thus would not be receptive to health promotion messages from the pharmacist. This would mean that clients' loyalty would not be retained and thus pharmacists would lose out financially[73,85,157]. Similarly pharmacists were concerned about duplicating the activities of GPs who are funded to provide health promotion services. Thus by being involved in health promotion, pharmacists would gain at the cost of GPs[159,160].

In summary, early surveys of pharmacists' attitudes towards health promotion showed that pharmacists did not consider health promotion as an important part of their role. There seemed to be some confusion over what was meant as health promotion in relation to pharmacy. To some health promotion from pharmacies meant the provision of leaflets and diagnostic testing, to others health promotion meant providing advice on non-pharmacy health related topics. With the increasing calls for pharmacists to be involved in health promotion, however, the traditional advisory role of the pharmacists is being described as health promotion and with this description pharmacists have placed greater emphasis on their health promotion role.

This lack of definition of health promotion in pharmacies has also led to confusion of researchers. Some researchers have investigated the provision of health promotion services, whilst others have looked at the health promotion advice provided by pharmacists during the course of their working day. In most studies however this distinction is not made.

Both researchers and pharmacists themselves have called for additional training especially in communication skills. The reasons behind the call for additional training and communication skills by researchers is a need for pharmacists to get away from the biomedical model towards a more person focused paradigm. Training is also needed to give pharmacists confidence in being active in health promotion. Inter-professional relationships also seem to have an effect on pharmacists' willingness to be involved in health promotion.

Table 2 Studies investigating pharmacists' attitudes towards involvement in health promotion

Reference	Method Sample	Main findings and comments
Thomas,KA; Brown,D; Hunt,A; Jones,IF (1996):[146]	Postal questionnaire, qualitative analysis of open ended questions. Piloted. Sample community pharmacists in England and Wales whose premises were registered members of the NPA and had less than 5 branches.	Response rate was 61.4%. 92.5% thought the contract could be improved by providing an allowance to fund a second pharmacist, 91.1% were opposed to abolition of a pharmacy contract. 86.7% thought that dependence on retail sale profits should be removed. 94.1% agreed with the principle of the extended role. The services which gained support of over 90% of the sample was medicine waste collection, repeat prescription collection and delivery, services to residential homes, emergency supply under the NHS, and health education and health promotion services. Diagnostic testing was supported by 68% of the sample and needle exchange by 60%. There was concern about the negotiation process.
Allen,J; Morley,A; Panton,R (1987):[147]	Telephone administered questionnaire. Pilot. Random sample of 164 community pharmacists in the West Midlands.	Response rate of 91%. 73% of the respondents were proprietor pharmacists. 71% felt current law relating to supervision was adequate. 61% were not in favour of the relaxation of this law. 85% supported the idea of a fourth category of medicines, Pharmacists only category. 99% thought more medicines should be reclassified to P medicines. The sample over represented proprietor pharmacists. Closed questions were used and the opportunity for elucidating reasons behind the responses was not taken.
Mitchell,RE; Smart,JD; Herring,CN (1989)[148]	Structured interview. Pilot study of 20 pharmacists. Sample pharmacies in the Portsmouth and surrounding areas.	Response rate was not quoted. 71% agreed that the law concerning supervision should not be changed. 76% agreed with patient registration with a particular pharmacy. Response rate was not determined. Opportunity of collecting qualitative work not taken.
Bond,CM; Sinclair,HK; Winfield,AJ; Taylor,RJ (1993)[150]	Postal questionnaire and follow up telephone call. Pilot study involving 12 pharmacists. Main Sample: a 20% random sample of pharmacies in Scotland from register of premises.	Response rate was 90%. 50% of pharmacists felt that their role had changed since the Nuffield report had been published. 81% felt that their role was restricted by the range of drugs available. 93% felt that they would like to extend their role. The survey was well administered and the response rate was very high. Closed questions were used in the main. Analysis used simple chi-square tests.

Table 2 continued

Reference	Method Sample	Main findings and comments
Anderson,C; Thomson,V; Wilson,P (1993)[151]	Focus group of 21 leaders in the field of pharmacy practice and education.	Structured discussions and activities led to the development of a picture of the key roles and required by community pharmacists at present and in the future. Pharmacists role as a health promoter was given the least significance by the group. Barriers to extending the role of the pharmacist were also identified.
Shafford,A; Sharp,K (1989) [56]	Postal questionnaire. Pilot. Main sample: all 897 registered pharmacy premises in the NETRHA.	Response rate was 58%. Questionnaire validated by comparing the mix of respondents with mix of independent and multiple owned pharmacies on the register. Observations were carried out to determine the estimated advice provided, some characteristics of pharmacies were validated by a visit to a randomly selected number of pharmacies. 55% of the respondents were not displaying health promotion materials. Data is available on the time allocation of pharmacists to certain tasks and the importance attached to each area of advisory role. Giving advice on health education topics was of least importance. This is a well conducted survey but limited tot he London area.
Moore,S; Cairns,C; Harding,G; Craft,M (1995).[73]	Structured interview. Pilot. A randomly selected and stratified sample of 30 pharmacists according to prescription work, location and proximity to doctors surgery.	Asked to estimate their advice giving. 1400 queries were dealt with per week for the sample. The activity was 2.5 times more likely to be reactive than pro-active. Pharmacists felt isolated. The authors conclude that they are still an under-utilised source. Also that they were very much medicine orientated where as their clients or customers tend to be health orientated. Barriers to the extended role was also compared in terms of time, extra staff remuneration etc.. It was unfortunate that qualitative data was not collected
Smith,F (1992)[152]	Tape recorded consultations of a random sample of 64 pharmacists in the London area.	711 consultations were analysed. Health promotion input, communication styles and interpersonal issues as well as symptom versus product focus of the consultation was conducted. Pharmacists were virtually always ready to advise. Their styles of questioning, the focus of the conversation around products could lead to lost opportunities for health promotion.
Keene,J; Cervetto,S; Willson,A (1993)[154]	Semi-structured interviews. Pilot interviews with 6 pharmacists. Main sample of 50 pharmacy contractors in West Glamorgan..	Quantitative data was presented. It was found that most pharmacists participated in health promotion by selling products , displaying leaflets and advising. 50% reported no involvement in topics such as depression, blood pressure or alcohol and exercise. Benefits of health promotion included expanded role, social good. Disadvantages included costs of training and space. It shows that payments, training and relationships with other professions are crucial issues in the present context of a profession working in a market situation. The sampling frame excludes employee pharmacists.

Table 2 continued

Reference	Method Sample	Main findings and comments
Keene,JM; Cervetto,S (1995)[161]	Semi-structured interviews. Pilot interviews with 6 pharmacists. Main sample of 50 pharmacy contractors in West Glamorgan..	Qualitative analysis was employed to reveal the complexity of the issues facing community pharmacists in developing their advisory role. It shows that payments, training and relationships with other professions are crucial issues in the present context of a profession working in a market situation. The sampling frame excludes employee pharmacists.
Sheppard,C; Hunt,A; Lupton,C (1993)[162]	Postal questionnaires. Pilot. Main Samples: all 480 community pharmacies in the Wessex regional health authority. All 98 FHSAs in England and Wales.	Response rate for community pharmacists was 50% and response rate for FHSAs was 80%. The study looked at the attitudes of pharmacists and FHSAs on the extended roles of pharmacists. Overall enthusiasm for development of pharmacists roles was high by both FHSAs and pharmacists. Some recommendations more widely accepted by one group than the other group. 3 main issues were identified: the need for adequate training, the provision of resources and the co-operation between pharmacists and GPs. No further analysis was carried out, merely a descriptive study.
Harding,G; Taylor, KMG (1991)[85]	Postal questionnaires. No pilot. Sample: all 362 pharmacies in two London FHSAs.	Response rate was 74.4%. In terms of supplying injecting equipment only one pharmacy reported operating an exchange scheme. Of particular interest is the reasons for not supplying injecting equipment, pharmacists thought this would attract misusers to the pharmacy and generally had negative images.
Smith,FJ; Salkind, MR; Jolly, BC (1990)[94].	Tape recorded consultations of a random sample of 64 pharmacists in the London area.	Quality of the advice was assessed on 9 criteria by an expert panel and generalisability theory was applied to ensure that the results could be applied to all the consultations. Pharmacists performance regarding health education was particularly poor. Only 14% of the consultations being satisfactory in this respect. Education system must address these issues. It was felt that the pharmacists were passive in responding to requests for advice, rather than identifying and seizing opportunities to provide an extended service have to read it all an excellent piece of work.
Benson,MA; Cribb, A (1995)[157]	Unstructured interviews. Sample 10 pharmacists, who had participated in training programmes. they were from different areas with a range of years and employment status	The study reports on the perceptions of the nature of pharmacists' health education role, the practicalities of implementing this role and the obstacles that need to be overcome. the pharmacists were clear about their health education role as it related to advice on prescribed medicines. However they were uncertain about other aspects of their health education role. These uncertainties are related to their education in a biomedical and functional paradigm together with ethical concerns about interference in the lifestyles of patients. Both these aspects influence the manner in which pharmacists communicate. The paper discusses the need for further advances towards patient orientated pharmacy, which is the essential direction for a health education role.

2.4.3 Involvement in minor ailments

As described previously the pharmacists' role in self medication is many fold including recommendations for treatments of symptoms and supervision of sales of medicines. Several developments have facilitated the role of the pharmacist in this area. These developments have been previously discussed and include the reclassification of medicines from POM to the P category and the subsequent introduction of protocols for sale of medicines. Researchers have investigated the views of pharmacists on these developments and to their role in responding to symptoms.

Pharmacists view their role in responding to symptoms as the most enjoyable aspect of their work[163] and place great importance on it[56]. In one study of pharmacists, 80% of the respondents reported that the extent of their advisory role was restricted by the range of non-prescription medicines available[150]. In terms of reclassification of medicines from POM to P a large majority of pharmacists have consistently been found to be in favour[150,164-166]. The researchers have also reported that the majority of respondents in the surveys had suggested many products for reclassification[150,164]. Despite these findings some pharmacists have certain reservations about the reclassification of medicines[150,164].

Rees found that female pharmacists were less enthusiastic about this development that their male counterparts[164]. Bond found that those pharmacists who had not made any suggestions for further reclassification of medicines had significantly different attitudes than the respondents who made suggestions for further reclassification. They did not feel that their advice giving role was restricted by the range of medicines available and they did not see a need for further deregulation of medicines or a pharmacist's formulary to be established[150].

Interestingly despite the support of the majority of pharmacists for reclassification of medicines, there has been criticisms of pharmacists not recommending the new reclassified medicines by the pharmaceutical industry. One study found that pharmacists were cautious in recommending a newly classified medicine, reserving its use for specific symptoms only. The study found that product safety and efficacy were the greatest influence on pharmacists' recommendations[167]. The authors suggest that the

price of the newly reclassified medicines may also influence pharmacists recommendations in that clients may not be able to afford the high price, and thus recommend cheaper more established products[167].

One consequence of reclassification of medicines from POM to P status is the ability of manufacturers to advertise the newly classified product directly to the public. The influence of medicine advertising on consumers is not favoured by pharmacists[164,167]. Rees reported that 85% of the respondents in her study were in favour of a new category of medicines which were not advertised to the public. 88.3% of the respondents also considered that advertising encouraged the public to take medicines they did not need. Respondents in the survey also considered that advertising interfered with their ability to recommend medicines based on professional judgements. This was felt more strongly by the independent pharmacists than those who work for multiple companies. McCafferty also reported that pharmacists perceived clients who requested newly reclassified medicines to be largely influenced by advertising. In terms of advertising affecting the role of the pharmacists, 84.4% of the pharmacists reported that the effect of advertising made customers regard the newly classified medicines as any other OTC medicine. Pharmacists perceived that only 25.2% of their customers expected to be asked questions regarding the newly reclassified medicine[167]. Thus advertising of medicines directly to the public is perceived to interfere with the pharmacists' ability to recommend medicines since the public will have already made their choices based on advertising. Also the routine and safe picture portrayed of the newly reclassified medicines by advertising, means that the public are not likely to expect to be questioned regarding their choice of medication.

The reclassification of medicines, increased advertising and criticism of pharmacists' advice has led to the introduction of protocols for the sale of medicines from pharmacies[26] . As well as the criticism of the quality of the advice of the pharmacists, the consumer association also questioned the availability of the pharmacist to intervene in the sale of medicines in the pharmacy. In particular the systems of bell ringing and holding up P category medicines to raise the pharmacists' attention to the sale were highlighted[57-60] . The protocols were introduced so that a proper system is in place which ensures intervention by the pharmacist in the sale of medicines. Specifically with the anticipated increase in the sale of medicines, the idea behind the protocols is to

ensure that assistants refer people appropriately to the pharmacist, so that people who are considered to need further advice by the pharmacist are referred and those that do not are not inappropriately referred.

Despite initial opposition to the use of protocols for the sale of medicines, one survey has found that pharmacists regard the protocols as useful[168]. John found that the majority of pharmacists thought the protocols increased staff awareness of issues concerning medicines. The protocols were reported to have increased the time that pharmacists spent outside the dispensary and increased the time spent on responding to symptoms. The protocols, however, had not led to a decrease in the referral of clients from pharmacy assistants to the pharmacists nor had they led to an increase in the referral of clients from the pharmacists to the GPs. Over 75% of the respondents to this survey, however, reported that clients resent being questioned [168].

In summary pharmacists welcome an extended role in responding to symptoms and supervision of sales of medicines. However, this places them in a difficult position in that they have to be pro-active and intervene on all sales, some of which they find unnecessary and which could lead to upsetting of the customer.

Table 3 Studies investigating pharmacists' attitudes towards involvement in treatment of minor ailments

Reference	Method Sample	Main findings and comments
Smith, FJ (1989)[94]	Postal questionnaire. Pilot sample; pharmacists in Liverpool FHSA. Main sample; all 1,280 pharmacies in the London postal district.	Response rate was 43%. Random sample of non-responders were followed up but there was no difference between responders and non-responders. 60% of pharmacists indicated that they enjoyed client consultations regarding to responding to symptoms and counter-prescribing. No other activity was mentioned with a frequency approaching this.
Rees,JA; Melzack,A (1992):[164]	Postal questionnaire. Pilot involved semi-structured interviews. sample community pharmacies in two FHSA areas.	Response rate was 76.4%. 86% of the pharmacists wanted more POM to P but these people tended to be males rather than females. 88% wanted a new class of medicines which could only be sold by a pharmacist. 88% thought that advertising encouraged public to but medicines they did not need. 88% of independents thought that advertising interfered with the recommendations made by the pharmacist.
Sutters,CA; Nathan,A (1993)[166]	Postal questionnaire. Pilot sample: 20 pharmacists and 20 GPs. Main study sample: all community pharmacies and GPs in two FHSAs, Enfield and Haringey and North Yorkshire.	Response rate for pharmacists was 67% and for GPs 42%. There was a large variation in response rate for GPs from the two FHSA (24% and 59%). Overall there was less provision of diagnostic tests in the rural areas by community pharmacists. Agreement was sought on 7 statements concerning the role of the pharmacist. Pharmacists were significantly more in favour of being involved in the selection of prescribed medicines, being part of the primary care team, being remunerated for treating minor ailments and referring patients to GPs, being given more responsibility for treatment of minor ailments by further deregulation of medicines, and feeling that the extent of consultations with patients for minor ailments being underestimated.
McCafferty,SL; Rogers,PJ; Wood, SM (1996)[167]	Postal questionnaire. No Pilot. Sample pharmacies in Avon.	Response rate was 74.1%. 37% of the pharmacists had completed a CPPE package on GI disorders. Proprietor pharmacists were least likely in completing the package. Product safety and efficacy was most important in recommending and respondents company and colleagues least important influencing factors. People who asked for medicines by name were least expected to get questioned. Most clients according to pharmacists were influenced by advertising. Most clients considered H2s just as another OTC remedy. 13.3% of the pharmacists did not think H2s were suitable for P medicines. Most would only recommend H2s for nocturnal heartburn only preferring simple antacids for other conditions. If a client had tried a variety of indigestion products they would refer them to the doctor rather than recommend an H2. Good study but again a hypothetical situation and limited by its sample. Interesting that pharmacists have not recommended H2s as much as industry would want.

Table 3 continued

Reference	Method Sample	Main findings and comments
John,DN; Evans, SW (1996)[168]	Postal and telephone questionnaire. No pilot. Sample was 326 pharmacies distributed in Gwent, Mid and south Glamorgan FHSAs.	Response rate was 96%. All the pharmacists reported a protocol was in use for the sale of medicines. 91% agreed that the protocols had raised awareness of staff to issues to do with medicines. 77% disagreed that staff had decreased their referrals. 57% and 68% agreed that more time is spent on the medicines counter answering questions on symptoms. 74% disagreed that they were referring more of their clients to the GP. 78% agreed that some clients had resented being questioned. 77% disagreed with the statement that the protocols had no impact on their day to day work. Good work. interesting that the protocols seem to have achieved their objectives i.e. getting pharmacists out of dispensary, dealing with people and making everyone aware of medicines. In terms of survey it seems that telephone surveys are a good way to access pharmacists. The sample was limited.

2.4.4 Provision of information on prescribed medicines.

The involvement of pharmacists with prescribed medication has traditionally been the dispensing of the medicines, reinforcement of instructions on the use of the medicine and associated advice on storage. The recommendations of pharmacists involvement in prescribing issues focus on both the prescriber and the clients. There have been calls for pharmacists to inform patients more about their medication at the point of dispensing as well as monitoring clients progress beyond the point of dispensing.

Advice on prescription medicines was reported by pharmacists as the most important aspect of their advisory role[56]. The public have also expressed a desire for more information on prescribed medicines and would welcome such information from the pharmacist[72,117]. Researchers have also explored situations in which pharmacists think there is a need for information. These situations include where there is confusion over medication, anxiety over treatment and dissatisfaction with treatment. Pharmacists have also highlighted a need for information for clients with specific clinical states e.g. disabling conditions such as diabetes, and life threatening conditions such as cancer. Need for information was also highlighted for specific groups e.g. medication problems in the elderly; mother / baby; patients on inhalers; warfarin; steroids; and mono-amine oxidase inhibitors[169]. Despite both pharmacists' and clients' expectations of provision of information with prescribed medicines, in practice pharmacists do not meet these expectations[53,117,170].

Only a handful of studies have investigated the reasons for the lack of provision of information on prescriptions. Morrow et al ranked the barriers to provision of information by the frequency with which they were mentioned in focus groups held with pharmacists[169]. Krska et al asked pharmacists to rank the reasons for not providing advice and information. Both studies reported the order of the barriers to provision of information to be: lack of time; lack of privacy; clients' preconceptions; knowledge and skills; lack of information on the clients background; and pharmacists' relationships with other relevant health professionals[117,169] . Studies have also reported that clients with repeat prescriptions receive less information than clients with first time prescriptions[117,170]. Reasons suggested for this is the prioritisation of pharmacists time

and assumptions on the part of the pharmacist that clients are less interested in receiving information.

The issue of pharmacists' perceptions of their roles versus the perception of GPs role in provision of information on prescribed medicines was highlighted in the studies cited above. The studies of Krska and Morrow ranked this issue as fairly low down in the order of difficulties in providing information with prescribed medicines. The ranking methods employed by Krska and Morrow may have underestimated the influence of this factor[117,169] . Livingstone hints that this factor is the most common reason why pharmacists are reluctant to provide information to clients about prescription medicines[170]. These suspicions were empirically investigated by Smith[171,172] in a case study of the pharmacists' role and responsibilities in relation to benzodiazepines. The majority of the pharmacists in the study recognised benzodiazepine prescribing as problematic and the majority believed that there was a role for pharmacists in reducing the problems associated with benzodiazepine use. Smith found that pharmacists were passive in informing clients about the effects of benzodiazepines, only providing information at the request of the client, despite believing that most clients are not aware of the potential problems with benzodiazepines. Smith reported that the extent of pharmacists' involvement in advising clients depended on the pharmacists' assumptions about the views of local prescribers in relation to the roles of pharmacists. Many of the pharmacists in the study reported that the medical practitioners would view the pharmacists involvement as interference. Smith also found that all of the pharmacists agreed that it was important not to impair the confidence of the client in the prescriber. She explains that pharmacists endorsed the role of the traditional doctor-patient relationship as a fundamental part of the therapeutic process.

Table 4 Studies investigating pharmacists' attitudes towards involvement in the provision of information on prescribed medicines

Reference	Method Sample	Main findings and comments
Krska, J; Kennedy, EJ; Milne, SA; Mckessack, KJ (1995)[117]	postal questionnaires to pharmacists and patients. No pilot reported. Main sample 80 randomly selected pharmacies in Scotland. All Patients who presented with a prescription in a two hour period in 14 pharmacies were given two questionnaires.	Response rate of pharmacists was 60%. 45 community pharmacists set standards for patient counselling by writing the advice they would provide on 10 hypothetical scenarios, 14 were then observed giving advice and counselling. 267 patients were given questionnaires before and after the advice. 81% expected advice but only 41% reported receiving any and only 33% were observed receiving any. Many expected information on what the medicine was for but not many received this information. 81% felt that the time spent on counselling was adequate although sometimes this was no time at all. pharmacists rated the order of reasons for not counselling in the order of lack of pharmacist's time, lack of patient's interest, lack of patient's time, lack of support staff, lack of knowledge / training, lack of self confidence, lack of pharmacist's interest, counselling not part of role.
Morrow,N; Hargie, O (1992)[169]	Focus group and expert systems approach was used. Sample: 16 pharmacists who enrolled on a communications skill course.	3 stages were involved in the study: itemisation of all situations in a pharmacy where counselling was needed, identification of most common difficulties, ranking of the most 15 most important counselling situations and 15 most common counselling difficulties. Confusion over medication, medication problems in the elderly and anxiety over treatment were the most reported situations where counselling was needed. Having sufficient time, ensuring understanding, dealing with preconceived ideas were the most reported difficulties. Although this seems to be concentrating on advice with medication the same things come up time and time again in other research concerning other advisory situations.
Livingstone,C (1996)[170]	Tape recordings of consultations between elderly patients and pharmacists. Sample 8 selected pharmacies in the Brighton area. Study population all elderly patients receiving prescription medication in 3 three hour sessions in each pharmacy.	4 pharmacies agreed to participate. 30 hours of tape recording for transcription were obtained. Overall, 65% of elderly patients receiving prescribed medicines had no verbal contact with the pharmacist. The pharmacist provided verbal information to 12.5% of the population. The information was generally on aspects of dosage regimen, the most common number of items being 3. The mean length of consultation was 71 seconds. during 43 interaction studies pharmacists asked 38 questions all of which were closed. Well carried out study. Makes assumptions about the reasons why pharmacists do not provide information.

Table 4 continued

Reference	Method Sample	Main findings and comments
Livingstone,C; Hayes,A; Ladenheim,D (1993)[53]	Covert research. Sample 30 pharmacies not known how selected. Researcher presented one private and one NHS prescription on two separate occasions.	Some information was provided with 25% of the prescriptions mostly of dosage schedule, additional warnings, duration of therapy, and storage. Prescriptions which were handed out by the pharmacists were accompanied by advice in 40% of the cases. No verbal advice was provided with any prescriptions for the oral contraceptive. Counselling was independent of pharmacy ownership, sex and age of the pharmacist. Both nature and frequency of the advice was independent of whether the prescription was private or NHS. Antibiotics were included in the survey so the effect of repeat prescriptions could be studied. These antibiotics received greater frequency of advice, however still 60% received no advice.
Smith,FJ (1991)[171]	Semi-structured interview schedules. 6 Pilot interviews. Sample 34 randomly selected pharmacies from the register of RPSGB.	Response rate was 85%. Though the views and practices of pharmacists varied, the vast majority believed that they should play some part in promoting sensitive benzodiazepine use. The role pursued is one of informing and advising clients rather than working with prescribers. Pharmacists make assumptions about the views and wishes of local prescribers regarding the pharmacists' role and responsibilities. These perceptions may or may not be correct, but are major determinants of the extent and nature of pharmacists involvement. The author relates this situation to the question of professionalism and who the pharmacist serves, the doctor or the patient?

2.4.5 Involvement in prescribing issues

The recommendations concerning pharmacists' involvement in prescribing issues also focus on providing information to prescribers especially GPs. Initially the nature of the information was one of the cost of medication. Pharmacists were recommended to collaborate with GPs and use Prescribing Analysis Cost Data (PACT) to interpret the cost of prescribing and recommend changes which would result in cost savings. It was hoped that this type of collaboration would lead to the development of formularies and decrease the wastage of medicines. More recently there have been recommendations for pharmacists to select medicines and dosages following an initial medical diagnosis as well as management of repeat prescriptions for chronic conditions by pharmacists and monitoring of adverse drug reactions. These recent recommendations suggest a more autonomous role for pharmacists in prescribing issues compared to the initial recommendations of giving support to GPs.

A number of projects have been set up to facilitate the close collaboration of pharmacists and GPs on prescribing issues[129,145,173,174]. Surveys have also shown that pharmacists' attitudes towards prescribing issues are similar to those of GPs[175]. Pharmacists have also expressed a desire to be more involved in primary care[54,74,176,177]. This is a good basis for collaboration on the issue. Pharmacists, although not unanimously, have also expressed willingness to collaborate on prescribing issues with GPs[176]. However, generally only a minority of pharmacists feel that they have an influence on prescribing and on an occupation wide basis only 10-20% of pharmacists are involved with GPs in formulary development and PACT interpretation[176,178].

In terms of the more autonomous roles suggested, pharmacists were supportive of a role in adverse drug reaction monitoring and reporting[166,179] but were less supportive of roles in which the pharmacist selected medicines after an initial diagnosis[179]. Over 70% of the pharmacists in one survey were supportive of a role in monitoring and improving patient compliance, counselling and giving advice on prescribed drugs and referring patients to a GP for POM medication. Only 63% of the pharmacists however were supportive of a role in monitoring patients quality of life[180]. Pharmacists also tend to be more reluctant to establish specialist clinical services e.g. chemotherapy services and caring for people with schizophrenia[54,181].

The barriers to the involvement of the pharmacist in prescribing issues are similar to barriers reported concerning other extended roles. These include the lack of time, lack of contact with other health care professionals, a feeling of inadequate knowledge base, training and experience, lack of communication skills, lack of access to patients' notes and history, a feeling held by pharmacists that their input is not wanted, poor relationships with GPs, a feeling that it is not the role of the pharmacists, remuneration and potential conflict of financial interest[54,63,166,169,176,180,181].

2.4.6 Overcoming the barriers

There have been developments to address some of these barriers for example there has been a dramatic increase in the interest and uptake of continuing education in pharmacy over the past 10 years[182,183]. There have also been developments in the undergraduate education with the inclusion of social and behavioural skills as well as clinical pharmacy[14,25,184-186]. Again no consensus has been reached concerning the syllabus for pharmacy undergraduates, but in general there is a feeling that education is detached from practice[187-193].

A major development has been the introduction of computer systems in pharmacies which hold medication records for patients[194]. This development has had several consequences for pharmacy practice. Firstly, the production of labels for medicines has become less time consuming[126]. Secondly, a record of patient's previous medication provides the pharmacist with a history of the patient and thus addresses the barrier of lack of access to patients' records held in the surgery. Thirdly, the computer systems also produce standard information on the medication, such as standard doses and interactions either on labels and or on printed information sheets[195]. Fourthly, the systems are also able to detect drug interactions which enable pharmacists to make clinical interventions[127,132].

Researchers examining the use of patient medication records in pharmacy have seen an increase in their uptake and use from 25% in 1989[196] to 61.5% in 1991 and 95.5% in 1995 %[63,64,126]. Closer examination of the use of PMRs, however, shows that the records are not used to their maximum potential. This is exemplified by the research of Rogers et al

who report that the number of clinical conditions recorded by the pharmacists are still low and have fallen since 1991[64]. Additionally the number of pharmacists recording non prescription medicines on the PMR is also low[63,64]. Pharmacists' views on the provision of information leaflets by the computer systems seem to mimic the opinions expressed by pharmacists in providing information to patients generally. That is they are concerned about the effect of provision of information leaflets undermining the confidence of the patient in the prescriber and that the information may alarm patients and affect compliance[64]. The development of PMRs have gone some way towards addressing the lack of access to medical records and patients' history. However, the records may be inaccurate for a number of reasons. In maintaining PMRs pharmacists have to rely on patients to provide them with accurate information. McEnlay, however, showed that pharmacists and patients assessment of the diagnosis was often different to that recorded in the medical notes[128].

Another reason for the inaccuracy of patient medication records is the fact that people have a choice in deciding which pharmacy to go to. Consequently PMRs held in the pharmacy may be incomplete. This has led to calls for patient registration with one particular pharmacy. Jepson et al sought the views of pharmacists on patient registration. The opinions were split with 60%-70% of pharmacists in favour of such arrangements, citing the completeness of records, continuity of care and patient benefits as advantages. Thirty to 40%, however, were against such an arrangement, citing restriction of patients choice and inconvenience of the arrangement as disadvantages[148,197].

Other developments have been suggested to overcome some of the barriers mentioned. These include provision of counselling areas to increase privacy when advising on medication. Pharmacists are supportive of this concept[148]. However, there are other concerns and difficulties with this development. Pharmacists have cited reasons such as lack of patient demand for a prolonged conversation, lack of space to provide a counselling room, that privacy was not essential for most matters that are addressed in the pharmacy and that a separate counselling room would prevent the pharmacist from carrying out his other duties of supervision, as difficulties in introducing counselling areas in the pharmacy[111,146,198].

The Nuffield report made two recommendations to increase the time available for pharmacists to realise their potential contribution to health care and to increase their interactions with their clients. It was proposed that whilst pharmacists should remain in personal control of a pharmacy, they should be allowed to leave the pharmacy for a limited period of time to carry out professional activities e.g. domiciliary visits and meetings with GPs. In addition Nuffield recommended that pharmacists should delegate some of their responsibilities in dispensing and not personally supervise the dispensing of every prescription[13], reserving their involvement for non-repeat prescriptions or implementing systems in which assistants would identify where a pharmacists' intervention is necessary. The subsequent events following these recommendation led to an emergency meeting in which pharmacists rejected this proposal and in fact recommended tighter controls[12,199]. Researchers have also investigated pharmacists attitudes to these proposals, and found little support for relaxation of laws relating to personal control of the pharmacy and supervision of dispensing[147,148].

The system of remuneration of pharmacists and the feeling that many of the activities were not part of the role of the pharmacist are a reflection of the pharmacy's contract for services held with the health authority. Recently researchers have investigated pharmacists' views on the NHS contract. Thomas et al found that pharmacists were very dissatisfied with the remuneration aspect of the contract and that the degree of dissatisfaction had increased over the past two decades. Pharmacists were also dissatisfied with the terms of service element of the contract. One reason for dissatisfaction was a lack of professional recognition and lack of integration into the primary health care team[200]. Respondents to the survey were also asked how the contract could be improved, a very large majority supported suggestions of introducing an allowance to fund an additional pharmacist. A very large majority also supported that their dependency on the profits made from retail sales should be removed. Suggestions for compulsory provision of advice when responding to symptoms were supported by 51.9% and compulsory provision of advice to prescribers were only favoured by 36.5%[200].

2.4.7 Factors predictive of pharmacists attitudes and involvement in the extended roles.

Researchers have investigated the effects of pharmacists' characteristics on their attitudes towards and their involvement in the suggested extended roles. The factors which have been found to be significant are listed below.

Gender

Generally male pharmacists have been the most enthusiastic concerning the extended roles[150]. Bond found that male pharmacists were more likely to indicate support for a change in the role of the pharmacist than female pharmacists. Male pharmacists were also more likely to report that their role was restricted by the number of medicines available in the pharmacy class[150]. Support for the reclassification of medicines from POM category to P has consistently been found to be higher with male pharmacists[150,164]. Male pharmacists were also more supportive than female pharmacists concerning the introduction of a nurse formulary[150].

Age and year of registration

Age and the number of years since registration of the pharmacist has been shown to affect the attitudes of pharmacists towards their roles. Smith found that younger pharmacists reported more advised sales during their working day than older pharmacists[201]. Rogers found that pharmacists who had registered prior to 1959 were less likely to use PMRs than more recently registered pharmacists. The use of leaflets to provide information to patients was also viewed less positively by pharmacists who had registered prior to 1959. Pharmacists who had registered since 1990, however, were more likely to support developments with PMRs such as links with prescribers, a nation wide pharmacy computer network, the provision of electronic BNF and Martindale On-Line[63]. These recently registered pharmacists were also more likely to record a higher mean number of conditions than their longer qualified colleagues[64]. Sutters also reported a difference in attitudes amongst pharmacists regarding support for more pharmacist involvement in the selection of medicines. Pharmacists registered between

16-25 years were more supportive of this role than those pharmacists registered over 25 years[166] .

Employment status and type of pharmacy

Researchers have also investigated the relationship between attitudes to the extended role and the employment status of the pharmacist or the type of pharmacy company that the pharmacist works in. Smith found that pharmacists working for large multiples were more likely to report higher daily rates for advised sales and requests for advice[201]. Begley also found that multiple pharmacies provided a wider range of services than independent community pharmacies[181]. Jepson found that pharmacists working for small multiple pharmacy companies (1-5 branches) were more in favour of patient registration than pharmacists in independent or large multiple pharmacies[197].

Single independent pharmacists, however, are more likely to under take services for drug misusers, and more likely to have an arrangement for prescription collection and delivery than large multiples[202]. Large multiple companies were more likely to employ qualified pharmacy dispensers and a pre-registration student[202]. Rogers found several differences in attitudes concerning the use of PMRs between pharmacists working in different types of pharmacies. Independent pharmacies were more likely to agree that use of PMRs enhances the professional status of the pharmacist. Pharmacists working in independent pharmacies and those working for Lloyds and Boots were more likely to record the supply of non-prescription medicines. Large multiple pharmacies were reported to be more likely to keep records for all clients[64].

Rogers also found that employment status had a significant effect on the use of PMRs. In pharmacies with a locum normally in charge only 26.1% had a PMR system as compared to 81.4% in pharmacies where the pharmacist was a partner in the pharmacy[126]. Locum pharmacists were also found to be more in favour of patient registration with a pharmacy than other pharmacists[197].

Single, independent pharmacists were less in favour of joint industry-sponsored meetings with GPs than were pharmacists working for multiple companies[180]. Such pharmacists were also more likely to consider that advertising interfered with their ability to recommend medicines based on professional judgements. These pharmacists,

however, were more positive about wanting certain POM medicines to be reclassified as P medicines[164].

Location of the pharmacy

Smith found that town centre pharmacies were more likely to receive a greater number of requests for advice than residential inner city or suburban pharmacies. The same pattern was apparent with the number of advised sales. Pharmacies with many others nearby were significantly more likely to make a high number of advised sales[201]. Pharmacists in town-city centres were less likely to report contacts with other health care personnel[203].

In rural areas where there are high numbers of dispensing medical practices, pharmacists felt that one of the barriers to collaboration, was the conflict of financial interests[166].

Continuing education

Maslen et al found that pharmacists who had participated in continuing education courses on mental illness reported being more confident in advising clients with schizophrenia[54]. Similarly Rogers found that pharmacists who had completed continuing education courses on PMRs recorded more conditions that those pharmacists who had not completed the course. These pharmacists were also more likely to archive and maintain their PMR system[64].

Socio-economic group of the clientele

Rogers found that pharmacies serving a population on low incomes or relying on state benefit, were more likely to record drug addictions than pharmacies serving a higher socio-economic population[64].

Leading practitioners

The studies described above have on the whole investigated the views of a sub section of the population of pharmacists and reported on perceived barriers. The only study to investigate pharmacists who have taken a more pro-active role in extending their role

was carried out by Tann et al[204]. The researchers hypothesised that those pharmacists who promote changes in their roles have a set of generic characteristics. They compared such pharmacists described as Leading Edge Practitioners (LEPs) with a control group of pharmacists in terms of the implementation of proposed services, approaches to change and the future, their work environment, changes introduced during the past year, intended future changes in practice and a number of other factors.

Tann et al found that although there were no significant differences between the LEPs and the control pharmacists in terms of provision of services such as PMRs or services to residential homes, LEPs' approach to the services were different to the control group. In the context of PMRs the authors present qualitative data which indicates that LEPs' use of PMRs was not solely for the identification of routine drug interactions, but were also used to identify patients which required further pharmaceutical care. The authors present data which shows that LEPs were found to initiate more actions, to be patient centred, to be effective soft networkers, more focused on staff and personal development and more effective influences[204] .

2.4.8 Summary and critique

Pharmacists seem to be happy with the general concept of an extended role. They seem to be most favourable to a role in treatment of minor ailments, rather than health education, provision of detailed information to people on prescribed medicines or provision of prescribing advice services to GPs.

Common barriers across all of the new roles included remuneration, a need for more training, lack of demand for the roles, lack of confidence, a feeling of role ambiguity, lack of contact with other health care professionals, relationships with GPs, lack of access to medical notes as well as lack of time, space and suitable environment. These barriers however are not impossible to overcome as Tann's study of leading edge practitioners has shown.

One criticism of the literature reviewed here is there is a lack of distinction concerning the development of certain services as compared to the pro-active advice offered by pharmacists. There may be different issues concerning providing a whole new service

as compared to providing extra information in consultations. Provision of new services will require financial investment, devotion of time and space, whilst provision of information in a conversation would involve assessments of relationships and knowledge.

Another criticism of the literature is that many of the individually cited factors are inter-connected. However, researchers have not tried to explain their relationships with each other. This has two implications; statistically there could be confounding effects between each of the factors under investigation, also the lack of understanding of the links between the factors may lead to suggestions of solutions which will not be effective in practice.

This lack of a holistic perspective to the barriers facing pharmacy's attempts to extend its roles have meant proposed solutions to overcome the barriers are still problematic. For example the independent development of PMR records from records held in the surgery do not resolve pharmacists problem of lack of access to medical notes, but add to it in the sense that pharmacists are not sure if their records are complete and thus may be reluctant rather than pro-active in intervening on prescriptions.

In the literature reviewed here, the populations surveyed have mainly been restricted to just one geographical area. National surveys of pharmacists attitudes have been rare and where national surveys have been carried out these have been restricted to only one of the extended roles e.g. provision of HIV prevention services and PMRs.

A further criticism of pharmacy practice research in general has been the low representation of employee pharmacists who work for the large multiple companies[47]. This has casts doubts on the representative nature of the research carried out to date, since it has been estimated that 68 -70% of the community pharmacy labour force consists of employee pharmacists[100,205-207] a significant proportion of whom are employed by multiple pharmacy companies. The problem stems in part from the sampling technique used for the surveys and in part from the collection of data by researchers which are thought to be commercially sensitive by the large multiple pharmacy companies such as prescription workload and staffing levels[48] (For a full discussion see chapter 4).

Previous surveys of community pharmacists have obtained a random sample of pharmacies from the register of premises held by the RPSGB. These surveys were sent to pharmacies and were addressed to "the pharmacist in charge" or to "the pharmacy manager". Thus these surveys have not determined the employment status of the pharmacist in the sample directly. Instead they have sought to determine the type of pharmacy in which the pharmacists practice. The representive nature of the sample has then been determined by comparing the proportion of the types of pharmacies in which the pharmacists practice to the proportion of the types of pharmacies on the whole register of premises held by the RPSGB. If one was to deduce that proprietor pharmacists would be working in single independent pharmacies and employee pharmacists would be working in multiple company pharmacies, then it can be seen from Table 5 that employee pharmacists have been consistently under-represented and proprietor pharmacists consistently over-represented according to the work of Magirr and Jefferson [100, 205-207]. These separate studies estimated that the community pharmacy labour force consists of 30-32% proprietor pharmacists and 68-70% employee pharmacists[100,205-207].

It seems that a better sampling strategy which would be more representive of the community pharmacist population, certainly in relation to their employment status, would be to use the register of pharmacists held by the RPSGB.

Table 5 The employment status of pharmacists in previous surveys.

	Surveys of Community Pharmacists							
Category of pharmacist	Rogers et al [126]	Rogers et al [64]	Bond et al [150]	Thomas et al [146]	Maslen et al [54]	Shafford et al [56]	Sheppard et al [153]	Blenkinsopp et al [202]
Proprietor/ directors / partners	49.5%	44%	40%	90.4%	49%	51%	40%	39%
Employees	50.5%	48%	59%	6.5%	51%	49%	57%	52%
Locum / other		8%	1	3.1%	-	-	-	9%

2.5 Consumer attitudes towards the roles of pharmacists

2.5.1 Introduction

The pilot projects on the extended roles of the pharmacists almost inevitably included an assessment of the views of the people using the pilot services. The importance of consumer views and the limitations of the assessments led to research on consumer views of existing and extended pharmacy services. Many organisations commissioned such research, including RPSGB, universities, pharmaceutical industry and the Department of Health.

Only a handful of research articles are worthy of mention here, however, reference to a wide range of articles are made in discussing consumer attitudes towards pharmacists' roles in health promotion, responding to symptoms, provision of information on prescribed medicines and a wide range of extended services. These articles use a variety of terms to describe people who use pharmacies including: patients; clients; customers; and consumers. These terms reflect the language that is used by pharmacists (see section 5.5.3) and thus in this thesis the terms are used inter-changeably. Before a summary of views on these areas, a discussion of the major articles that have informed this thesis is presented here.

2.5.2 Major studies

The most comprehensive investigation of the views of consumer views of community pharmacy was commissioned by the Department of Health and jointly conducted by Aston University and MEL research[76]. The aim of the research was to identify:

- The perceptions
- Needs
- Expectations
- Experience and

- Satisfaction of key consumers of community pharmaceutical services.

The emphasis of the research was to develop a qualitative understanding of the key issues in pharmacy practice research. The work was an advancement on previous pharmacy practice research since it employed a number of methods including discussion groups, face to face interviews as well as traditional quantitative survey. The research investigated two categories of consumers, those who are high users of medical goods and services because of their health (asthmatics, celiac, etc) and the general population. The high users were recruited mainly by community pharmacists and the general population sample was drawn at random from the published Electoral Registers.

The discussion groups held with consumers were used to inform the design of two surveys. The surveys were administered by postal questionnaires and by face to face interviews. A wide range of topics were covered from instructions on prescribed medicines, advice on treatment of minor ailments, views and usage of information leaflets, views on existing services, access to current and extended services.

This major piece of work has to be commended, however, the work is exploratory and is not without its limitations. The study made presumptions of the identity of high users of pharmacy and investigated the views of ostomists, celiac, diabetics, asthmatics, pregnant mothers, frail elderly and carers. In the report of the investigation these assumptions were revealed to be based on the health care cost of these groups. The choice of these groups were not ideal since the researchers found it difficult to recruit members of this group from community pharmacies. In addition the initial discussion groups revealed that these groups all have specialised support services and thus may not use pharmacies to address their specific needs. For example ostomists may use mail order companies for their supplies and stoma nurses for advice. The choice of high user groups is disappointing. The small numbers in these groups made statistical comparisons difficult and detracted from the report since comparisons of high users and the general population were consistently made.

In the study described above high users of the supply aspect of pharmacy services was investigated. A major study investigating the consumer views of the advisory aspect of

pharmacy services was carried out by Cunningham-Burley[208]. This study which used qualitative methodology, revealed a variety of uses of pharmacists' advice by mothers in treating minor complaints of their children. The study reported the use of the pharmacist for differential diagnosis; as an alternative to the doctor; and as a stepping stone to the doctor. This type of approach proved to be beneficial in revealing the situations in which the extended advisory services of pharmacists may be used, rather than the nature of the clients who use pharmacy services. This study was subsequently followed by a study of "how people use a chemist" and "what makes a good chemist" [209]. The subsequent study built on the initial study and adopted both a qualitative and quantitative approach to its investigation[209].

The qualitative methods that were advocated above were adopted for another influential study of consumer views of extended roles of pharmacist[210]. Similarly to the first study described above, groups of high users of pharmacies and those in full-time employment were chosen. However in contrast to the first study, these groups were chosen based on the patronage of pharmacies rather than health care costs. The high user group were the active elderly, mothers of young children, carers of people with disabilities and people in full time employment. Important issues were revealed and are discussed in the appropriate sections below.

The final study to be described in this section is the work of Hargie and Morrow[71,72], who in their investigation of consumer views made a distinction between public's current experience of the advisory role and the response they consider as the ideal. This study investigated issues such as the frequency of unsolicited pharmacist advice, the degree to which explanations were given in relation to prescription medicines, patient understanding of and satisfaction with the information provided. The research was informative, however, the design of the survey was based on communication theories that the researchers were in favour of and this detracts from the findings.

The studies described above have all influenced and informed this project by providing an understanding of consumer views on pharmacy service and the methods employed in research.

2.5.3 General views of community pharmacies and pharmacists

A number of studies have sought the reason for utilisation of pharmacies and their services. The studies report that a high percentage of people use the same pharmacy for the dispensing of prescriptions and for advice[71,72,209,211-214].

The characteristics of pharmacies that are valued include: the convenience of no appointments; the location of the pharmacy both in relation to the medical surgery and place of residence; having a wide range of goods; being able to make inquiries at their own convenience; and a quick service.

Personal characteristics of the pharmacist and the pharmacy such as the helpfulness of the staff; the approachability; the knowledge and friendliness have also been cited[72,76,209,211]. There was also concern regarding the pharmacists training; access to patient records; and the relationship with GPs[76,209,210]. The public generally see pharmacists both as business and health professionals, whilst most want to see them as health professionals[72]. There was also reported to be some concern over the role of the pharmacists as a health care professional and the role of the pharmacists as a supplier of medical goods[76].

2.5.4 Health education and health screening

There was a mixed view on the health education role of the pharmacist. Whilst consumers view pharmacists as a source of advice on minor ailments, they are not sure that pharmacists should be involved in provision of advice on general health[72,76]. This is reflected in consumer experiences where only a very small minority have actually asked for advice on general health matters and reported receiving any unsolicited advice[62,72,76,212]. In contrast to verbal communication on general health, many consumers had noticed information leaflets on general health and found them useful[76,210]. In terms of health screening and the provision of diagnostic tests, there was much less support. Costs to the consumers were seen to be the biggest issue, whilst high users of pharmacies had other outlets for these tests[76,210].

2.5.5 Responding to symptoms and supervision of sales of medicines

There was greater support for pharmacists' involvement in treatment of minor ailments[62,76,101,210,214]. However, there were significant proportion of respondents who had reservations. Again this is reflected in the findings that a low percentage of respondents had actually asked for advice and the proportion who would use pharmacists as the first response to their illness[62,72,76,212]. Consumers made a distinction as to what was considered serious and what was considered appropriate for self treatment[62,72,76,209,212-214]. For most conditions consumers felt that the doctor was more appropriate to consult. Only conditions such as a dry cough, a minor eye irritation, and diarrhoea were thought appropriate for treatment by the pharmacist in the first instance[213,214].

The reasons for self treatment included that the condition was not serious enough to contact the doctor, the pharmacy was convenient, the pharmacy could be used as a stepping stone to the doctor, as an alternative to the doctor, going to the pharmacy saved time of both GPs and person, purchasing medicines from the pharmacy sometimes cost less and pharmacies were open longer. Reasons for going to the GP was that it was better value for money; that more potent medicines could be obtained; GPs could diagnose; and lack of privacy in the pharmacy[76,208-211,214,215].

As opposed to involvement on diagnosis of ailments, there was much more support for pharmacists advising on specific products[72,76,210,214], although there was a proportion of people who did not want advice[72]. The needs reported included advice on side effects; dosages; and interactions[210]. Once again only a small percentage of respondents had received advice directly on products from pharmacists[72,76]. This is also backed by the research of the consumer associations which have highlighted the lack of advice with the sale of medicines[57].

2.5.6 Information on prescribed medicines

Generally there was support for provision of information, such as side effects, how and when to use the medicines and what the medicines were for[71,113,210]. This support was not consistent. In one study 56% wanted advice every prescription[216] whilst in another study 81% said that they expected information on every prescription[71,117]. Once again

the consumer studies reveal that the proportion of people requesting and receiving advice on prescribed medicines are in the minority[71,117]. Those who had received advice, however, thought the time spent on the advice was adequate and were satisfied with the advice[71,117,210].

2.5.7 Extended services

The pilot projects that have encouraged the provision of extended services all report favourable views of consumers on the different extended roles [80, 83, 87, 90] . However, researchers investigating a number of such services have constantly found support for the extension of the traditional role rather than provision of completely new services. Thus there is great support for services such as delivery and collection of prescriptions, support for involvement in treatment of minor ailments, as opposed to provision of diagnostic testing and domicilliary visits to review medication. This has led several researchers to conclude that the extension of the role of the pharmacist should be in the direction of their traditional supply based services[76,113,208-210].

2.5.8 Factors predictive of support for extended roles of pharmacists

There are a number of factors which have been highlighted in the studies described above as predictive of support for the different extended services.

Gender

Women rather than men were found to be more supportive of the pharmacists' roles in provision of advice. This could be linked to the fact that women are high users of pharmacy service[213,214].

High users

High users of medical goods were found to be more supportive of the roles around the traditional supply of medicines. These included more support for delivery services, and keeping medication records, as opposed to provision of specialist advice. Once again this could be linked to the provision of extensive support services for such clients[76,210].

Mothers of young children

Mothers of young children were found to be supportive of the advisory role of the pharmacist. This was linked to mothers not wanting to bother the doctor in cases of minor complaints and the fact that in emergencies pharmacies are more accessible [168,208,210].

Age

The elderly were constantly found to be less supportive of pharmacists extended roles. This was linked to their perceptions of the traditional role of the doctor and the pharmacist[76,210,213,214,216-218].

Costs

Financial considerations were important to consumers. It was found that this influenced their decisions to go to the pharmacy for non-prescription medicine[215], whilst provision of diagnostic testing was supported as long as there was no cost attached[210].

2.5.9 Summary and critique

In summary there is a great deal of variation in the research articles describing consumer views. Some consumers would consider using a pharmacy for information on general health matters, whilst a smaller but significant proportion would not consider using the pharmacy. In contrast there is support for a role in provision of information on treatments of minor ailments, and diagnosis of ailments as long as they are considered not serious. The articles report that consumers want information on prescribed medicines, however, they also report that consumers do not receive the information. Those who do receive advice, however, are generally satisfied with the advice they received. The advantages to using a pharmacy include its location and layout, in addition to the personal characteristics of the pharmacists and the staff are also considered important. In terms of the extended roles, the services closest to the traditional role receive the greatest amount of support, whilst newer more clinical services receive less support.

The variation in the expectations of consumers on the pharmacists advisory roles makes it difficult for pharmacists to develop their role, since they are not able to decide which people expect and require advice and whether they are receptive to it.

There are limitations to the studies described here which have implications for the generalisability of the results. The studies use different population samples, whilst some of the studies have recruited people from a small number of non-randomised pharmacies, others have taken their sample from the general public. There are also limitations relating to the design of some of the questionnaires which are based on previous studies and interest of the researchers. In addition the choice of categories of high users of pharmacies can be debated. There is also no longitudinal studies of consumer perceptions.

Table 6 Consumer attitudes towards the roles of the pharmacists

Reference	Method and Sample	Main Findings and comments
Jepson,M; Jesson,J; Kendall,H; Pocock,R (1991):[76].	qualitative interviews and a postal survey was adopted. The sample of high users were not random and were recruited through pharmacies (513). The sample for the questionnaire was a random sample of the general population (600).	This paper reports the findings of a Department of Health commissioned survey into consumer expectations, needs, perceptions and satisfaction of community pharmaceutical services, in which consumer uptake and satisfaction with this literature was studied. The population sampled included people with asthma, diabetics, colic disease, or with a stoma, as well as frail elderly people and pregnant women and carers. These high user segments of the population were compared with a random general population sample. This research has been one of the first to look at the perception of the pharmacy healthcare leaflet campaign from the consumers perspective. A social science and market research approach has been taken. Consumers were asked whether they had noticed health promotion literature or booklets in the pharmacy, whether they had taken any away to read and whether they found them useful. Two thirds of the high users and 48 percent of the general public had noticed leaflets while 37% and 23% respectively had taken some away to read. This is a major piece of work. It does things properly i.e. qualitative and quantitative methods are used. The researchers are multi-disciplinary. They have also produced several working papers: consumers talking; literature review; methodology; the actual survey; ethnic minorities and community pharmacies. The only reservation is the categorisation of high users, who were difficult to recruit through pharmacies.
Smith,FJ (1990):[211]	Questionnaire survey of 138 clients seeking advice of a random sample of 64 community pharmacists in Greater London.	While convenience of the service was the most valued feature, other aspects were also important. Personal characteristics, such as approachability, interest and concern were the qualities valued most in a pharmacist; it may be that satisfactory clinical skills were assumed. Attention should be paid to clients perspectives to ensure that the attractions of pharmacy advisory services are preserved and that their development is relevant to the wishes and needs of clients, thus promoting an increased uptake. This survey was limited due to the low response rate and it is not clear if the sample was chosen at random. The questions however seem to be very relevant.

Table 6 continued

Reference	Method and Sample	Main Findings and comments
Williamson,V K; Winn,S; Livingston,CR; Pugh,AL (1992):[210]	Interview questionnaire with four groups of people: carers of chronically sick, mothers with children under five, active elderly, those in full time education (133). Some of the responders were randomly selected.	The interviews lasted about 40 minutes. 29% of the responders reported that they never received advice about prescribed medicines whereas 24% always received advice. Advice with OTC medicines was less with 56% never receiving advice and 13% always received advice. The majority (56%) had asked advice on medicines. 56% liked more advice on prescribed medicines when collecting medicines, and a combination of verbal and written advice was preferred. Elderly people wanted far less information.. 68% of mothers had used the pharmacy for health advice whilst only 13% of the elderly had. The use of screening tests was very low and few had asked for advice on staying well. 68% said that they would go to the pharmacy to buy a non-prescription medicine as opposed to the GP, speed was the most important factor. Only 48% had noticed information leaflets. The elderly group were consistently less supportive of pharmacists roles in advising on medication, provision of health promotion, diagnostic testing and keeping of PMRs. The authors conclude that there is a wide variety of expectations of pharmacists and that marketing strategies need to be encourage people to use other services which might be of benefit. There is also a need to build closer relationship between pharmacists and GPs and to demonstrate the complementary roles. A good piece of descriptive work. Interesting sampling strategies. Can not claim to be generalised but issues are revealed.
Hargie,O; Morrow,N; Woodman,C (1992):[72]	Administered survey to 261 member of public recruited in five shopping centres over one month. Every 10th person was approached	No response rate was reported. The questionnaire was based on actual experiences and expectations. The survey revealed that loyalty to a particular pharmacy increased with increasing age . However two thirds of consumers would go first to the doctor for advice on health problems. The majority would like to see pharmacists being health orientated rather than business orientated, yet one third felt they were primarily business orientated. This article suggests that the profession should look at ways of encouraging patronage by younger clients. Good piece of work demonstrating actual practice and expectations. These are not too dissimilar. The survey can not claim to be representative. The survey was based on previous questionnaires and followed communication theory.

Table 6 continued

Reference	Method and Sample	Main Findings and comments
Morrow,N; Hargie,O; Woodman,C (1993):[71]	Administered survey to 261 member of public recruited in five shopping centres over one month. Every 10th person was approached	This article extends a previous report of a survey of 261 members of the general public concerning their opinions of and reactions to, the advisory role of community pharmacists the survey investigated, among other issues, the frequency of unsolicited pharmacist advice, the degree to which explanations were given in relation to prescription medicines, patient understanding of and satisfaction with information provided, and the extent to which demonstrations were employed to ensure patient compliance with the use of medical appliances and devices. The findings are discussed in the context of possible future directions for the pharmacy profession. Good piece of work demonstrating actual practice and expectations. These are not too dissimilar. The survey can not claim to be representative. The survey was based on previous questionnaires and followed communication theory.
Mottram,D; Ford,JL; Markey,B; Mitchelson,K (1989):[213]	Administered survey to every person entering two pharmacies. 712 people were surveyed.	532 customers entering two community pharmacies aged 16-60 and over 60 were interviewed using structured questionnaires. Asked them if pharmacists should give advice on a range of minor ailments and if they would consult the pharmacist. A higher proportions of females were more likely to seek the views of the pharmacist. The majority said that they would neither ask the pharmacist or the doctor. There was a significant difference in the age groups with less over 60s thinking that the pharmacist should give advice. this group said that pharmacists should only give advice when asked for it. They were also less likely to use a private consulting area. Good piece of work but has limitations in the sense that it was only done from two community pharmacies, the responders were also people who use the pharmacy so not a general population view. The questionnaire was pre-designed and required a simple yes, no answer. Can not claim to be generalisable.
Brown,C (1991):[219].	Self administered questionnaire of 2000 pharmacy customers.	Many findings that can not be reported here.
Williamson,V; Winn,S; Livingstone,C; Pugh,A (1992):[216].	Interview questionnaire with four groups of people: (133). Some of the responders were randomly selected.	The Nuffield report and the pharmaceutical care report have recommended an extended role for community pharmacists. However little work has been done to see the attitudes of the general public to these recommendations. The extended role is thought to be more important to a groups of patients such as carers, mothers with young children, the active elderly and those in full time employment. 133 40min interviews were conducted. the response rate was 37-47%. Also interviews were carried out with representatives of each of the high user groups. Conclusions there is demand for counselling and specific strategies are needed to implement the recommendations for the elderly.

Table 6 continued

Reference	Method and Sample	Main Findings and comments
Schafheutle,EI; Cantrill,JA; Nicolson,M; Noyce,PR (1996):[215]	Structured qualitative interviews with 36 clients recruited from community pharmacies.	Used hayfever sufferers to gain an understanding of reasons for choosing particular management options and attitudes towards self medication. For people who went to the doctor the main reason was cost, better value to get a larger quantity on a prescription. The incentive to self medicate was convenience. Many people mentioned risks of self medication and said there was a need for information. A good piece of work. This kind of work needs to be developed further. Again reflects the nature of pharmacy and medicine in that the option is to go to the pharmacy or to go to the surgery.
Livingstone,C R; Pugh,AL; Winn,S; Williamson,V K (1996):[113]	Evaluation of an information advisory service from four community pharmacies. 1614 leaflets were issued on four drugs and supplemented with verbal advice from community pharmacists. Data was collected from a sample of 311 recipients.	Response rate was between 60-70%. 64% remembered receiving the leaflets and 54% the verbal advice. More than 80% supported this service. The types of advice people reported receiving included when to take the medicines, the name of the medicine, and the side effects. 38 to 67% reported recognising one type of side effect. side effects were recognised when both leaflet and verbal advice was provided. Very interesting piece of work. It is the only work on increasing the information giving role of pharmacists on prescriptions.
Vallis,J; Wyke,S; Cunningham-Burley (1997):[209]	Qualitative interviews with 50 randomly selected members of the public. Postal questionnaire to 1000 randomly selected members of the public	Response rates were 53% and 60% respectively. The findings show that the respondents had a high regard for the community pharmacist, but low expectations of pharmacists' diagnostic and therapeutic roles. Pharmacy and dispensing services were more highly supported than therapeutic or advisory roles and these were more highly ranked than the consumerist perspectives. Reasons for low expectations included, the concern about training, concern about access to patient records, concerns about the nature of the therapeutic relationship, concern about privacy and concern about availability of diagnostic and therapeutic equipment. A very good piece of work, shows how consumer expectations are important. Also important is the conclusion of other researchers who say that the pharmacists extended role should be a consolidation and extension of his dispensary services.

Table 6 continued

Reference	Method and Sample	Main Findings and comments
BRMB (1996):[212]	Administered questionnaire to a sample who had used a pharmacy for one of three reasons in the past year. Random location sampling was used. Views of over 500 consumers of pharmacy services.	Looking at issues such as what they use the pharmacy for and how often, use of pharmacies for repeat prescriptions, one off, sale of medicines, how they get there and how loyal they are and reasons for choosing the pharmacy in their last visit, Also how often they obtained pro-active advice.
McElnay,JC; Nicholl,AJ; Grainger-Rousseau,TJ (1993)	Administered questionnaire to random selected members of public recruited from 9 shopping centres.	Data from 906 members of public. 67% had visited a pharmacy in the last month. Females visit pharmacists more often. Proximity to patients home was the most likely reason for choosing a pharmacy. The major factor for OTC use was previous use, followed by pharmacists advice. 93% felt that there was a role for pharmacists in health promotion. 90% supported health screening and patient medication records. Younger age group were more supportive of health screening and PMRs than the elderly Quite a good piece of work. Limited piloting and only a short questionnaire. The results are surprisingly supportive as compared to other surveys of consumer views.
Krska,J; Kennedy,EJ; Milne,SA; McKessack,KJ (1995):[117]	45 community pharmacists set standards for patient counselling, 14 were then observed giving advice and counselling. 267 patients were given questionnaires before and after the advice.	81% expected advice but only 41% reported receiving any and only 33% were observed receiving any. Many expected information on what the medicine was for but not many received this information. 81% felt that the time spent on counselling was adequate although sometimes this was no time at all. Many of the pharmacists agreed to complete the audit cycle. The authors conclude that the questionnaires were reliable and comparable to the observational study. One of few papers designed to extend the role of the pharmacist in provision of advice on prescribed medicines.

2.6 Inter-professional contacts and GPs attitudes towards the roles of pharmacists

The pilot projects investigating the extended role of the pharmacist revealed the importance of relationships between pharmacists and GPs in determining the success of the project. Consequently many researchers investigated the number and nature of contacts between the two occupations, as well as their relationships (see Table 7).

2.6.1 Contacts with GPs

Due to the separation of the pharmacy and surgery premises, verbal contact between GPs and pharmacists usually takes place by the telephone[178]. The number of contacts between GPs and pharmacists has shown to vary. The majority of the studies report between 1-10 contacts per week, however, these studies also report a significant proportion who had no contact at all[178,220,221]. The majority of the contacts were initiated by the pharmacists[181,221].

GP instigated contacts was investigated by Harding et al[222]. GPs generally reported more contacts with pharmacists. GPs who had pharmacies in the health centre, however, reported the greatest number of contacts. Once again a significant proportion reported hardly any contacts.

2.6.2 Reason for contact

The main reasons for the contacts reported by pharmacists is the clarification of prescriptions[220,221]. Two studies reported these reasons in more detail[178,221]. Jepson et al reported the purpose of the contact as follows: 65% for patients drug therapy, 44% for delivering stock to the surgery, 33% for pharmacist referral, however, in terms of clinical issues such as PACT, asthma clinics, Diagnostic tests etc., there was no contact. GP initiated contacts were reported to be much less frequent. GPs would contact pharmacists in relation to the supply of a product or in relation to prescribing details e.g. availability of a product and drug dosages and quantities[178]. Kennedy et al used a

different category of purpose of contact. Prescription processing was the most frequent type of contact accounting for 57% of all contacts, followed by management and administration reasons, 24%, followed by educating health care professionals, 12%, patient care functions, 4%, and non-professional accounting for 2%[221] . Whilst pharmacist initiated contacts were usually for prescription processing, GP initiated contacts tended to be for management and administration functions. Contacts relating to patient care accounted for less than 5% of all contacts.

2.6.3 Inter-professional relationship

The contacts were reported to be friendly on most occasions[220]. Both GPs and pharmacists have described their relationships as satisfactory. Sutters and Nathan found that a greater proportion of GPs as compared to pharmacists, reported their relationships as excellent or good[166]. An indication of the difference in this finding is presented in Harding et al's work. The authors reported that whilst pharmacists described the relationship as satisfactory in the sense that they got on well with the GPs, they indicated that they were frustrated that their potential contribution to cost effective prescribing was not realised and utilised by the GPs[223].

Most pharmacists and GPs have indicated that they are willing to collaborate and develop their relations. The main reasons for a lack of collaboration is the lack of time, lack of opportunity to meet and get to know each other, a feeling of inadequacy of the knowledge base of the pharmacists and lack of defined roles for pharmacist in collaboration with the GPs. Several suggestions were made for increasing collaboration. These included joint education at undergraduate and post graduate levels, and collaboration in audit and health promotion projects[166,223,224].

Table 7 Studies investigating the number and nature of the relationships between GPs and pharmacists

Source	Number of contacts	Nature of contact	Description of relationships
Smith,FJ (1990):[220].	39.1% of pharmacists reported contacting GPs between 1-3 times per week, and 38.6% contacting GPs 4-10 times per week.	The main reason for contacts was clarification of prescriptions (78.3%).	90% of contacts were described as friendly and 77.5% were keen to further development of relations between the two occupations.
Harding *et al* (1994):[222]	GP instigated contacts. 5% reported contacts of more than 30 times per week, 21.7% reported contacts of 10-29 times per week, 48.9% reported contacts less than 10 times per week and 29.4% reported that they hardly ever had contacts. GPs who had health centre pharmacies, reported more frequent contacts with 9.7% reporting 30 times pr more, 36.5% reporting 10-29 contacts, 47.3% reporting contacts of less than 10 times and 6.5% reporting hardly any contacts per week.	GPs would contact pharmacists in relation to product and prescribing details e.g. availability of a product and drug dosages and quantities	Both GPs and pharmacists described their relationships as satisfactory with the GPs indicating that they would not hesitate to use the pharmacist with queries relating to prescribing details. The pharmacists, however, described that the relationship was satisfactory in the sense that they got on well with the GPs but they indicated that they were frustrated that their potential contribution to cost effective prescribing was not realised and utilised by the GPs.
Jepson *et al* (1995):[178]	59% of pharmacist and 71% of GPs said that they had spoken contact between 1-5 times in the past week. 33% of the pharmacists reported that they had more frequent contact compared to 4% of the GPs who reported this. 25% of the GPs said that hey had not spoken to the pharmacist over the past week. There were very few face to face contacts in that the majority had not visited each others premises.	The purpose of the contact: 65% for patients drug therapy, 44% for delivering stock to the pharmacy, 33% for pharmacist referral, clinical issues there was no contact.	

Table 7 continued

Source	Number of contacts	Nature of contact	Description of relationships
Begley *et al* (1994):[181]	46.2% of the pharmacists and 51.3% of the GPs reported 1-5 contacts per week. 30.1% of pharmacists and 22.2% of GPs reported 6-10 contacts per week. 24.8% of GPs reported no contacts. This compares to 7.1% of the pharmacists who reported no contacts.		
Kennedy et al (1997)[221]	A mean of six initiated or received contacts by each health professional in a week. GPs initiated 3 contacts and pharmacists initiated 9 contacts per week	Over half of all contacts was prescription related and initiated by pharmacists to clarify prescription details. Contacts about patient care formed a small proportion.	
Holden *et al* (1996):[177]	46% of the pharmacists and 16% of GPs claimed to be in contact daily. 41% of pharmacists and 46% of GPs claimed weekly contact. 7% of pharmacists and 15% of GPs claimed fortnightly contact. 4% of pharmacist and 6% of GPs had contact less than once a month. 15% of GPs and 9% of the pharmacists claimed not to have met a member of the other profession.		

2.6.4 Health education and health screening

Researchers investigating the GPs' opinion on the health education role of the pharmacist have mainly focused on the availability of health education material in a pharmacy and advice associated with health screening. Attitudes of GPs to the health education role of the pharmacist have shown to vary. There was support for pharmacists in the provision and display of health promotion materials[159,226]. Much less support is reported for pharmacist providing a number of screening services[181,224,226].

The reasons behind the consistent lack of support for screening services and the associated advice has been discussed by a number of researchers. Health screening is perhaps the extended role of the pharmacist which overlaps the most with that of the GP. There are concerns of encroachment of professional boundaries[222,224,226]. Edwards explains that in the GP contract, doctors are funded for providing screening services and well person clinics. Pharmacists providing such services may be seen to be in direct competition with the GPs[160]. Woodward comments on the lack of confidence on the pharmacists advisory role in general[159] and Harding reported that GPs were concerned about pharmacists dispensing what they thought was medical knowledge[222]. Edwards and Spencer state that GPs are concerned about the lack of follow up relating to the screening services offered by pharmacists, as well as concern about the quality of the automatic diagnostic testing machines, the pharmacists ability in interpreting the results and counselling of patients[160] . They state that the reason for these concerns is that pharmacists are not members of the primary care team and this has led to misconceptions about their training, roles and motives[160,226].

2.6.5 Treatment of minor ailments and availability of medicines without prescription.

Support for the pharmacists' involvement in treatment of minor ailments ranged between 40-60% of respondents in surveys of GPs[225,226]. The support for pharmacists recommending medication, however, depended on the condition being treated and the type of medicine. For example GPs were happy for symptoms such as coughs and colds to be treated by pharmacists, but were against symptoms such as cystitis and

haemorrhoids being treated by pharmacists. GPs were happy for pharmacists to recommend Dihydrocodine for toothache but were against pharmacists prescribing Cimetidine and anti-biotics[225,226].

There is evidence to support that GPs attitudes are changing towards self medication and the pharmacists roles in treatment of minor ailments. The more recent surveys reported a greater proportion of GPs in favour of self medication and the majority reported that the extent of pharmacists' involvement in the treatment of minor ailments is underestimated[166]. The changing attitudes of GPs were further demonstrated in a study by Erwin et al[227]. Erwin et al used the section from Spencer et al's questionnaire [226] relating to the deregulation of certain medicines. There was significantly more support for all of the medicines in 1994 compared to 1990. In particular there was more support for the deregulation of Chloramphenicol eye drops, Cimetidine, Beclomethasone nasal spray. Although there was an increase in support of deregulation of some antibiotics, the majority of the respondents were not in favour of this.

Further support of the pharmacists role in the treatment of minor ailments by GPs is reported in Smith's work[228]. GPs were asked if they thought that a referral should be made to a GP by the pharmacist when presented with 62 common symptoms. 60% of the GPs stated that less than 20% of the 62 symptoms needed direct referral. The mean number of symptoms that required no referral at all was 26 or 42% of the total symptoms. This indicated that the majority felt that many of the symptoms were suitable for management by pharmacists.

All of the studies described above urged closer collaboration and communication between pharmacists and GPs. One of the suggested ways of increasing communication and collaboration is the introduction of referral forms which would formalise the referrals of people with more serious symptoms by pharmacists to GPs. This idea was piloted and evaluated in six community pharmacies, during an 18 month period. It was found that the referral cards were received positively by GPs, patients and pharmacists[110].

It would seem that over the past 10 years the views of GPs regarding the treatment of minor ailments and the availability of certain medication without prescription has

changed. This may be attributable to developments such as fundholding and the increasing workload of GPs. There is also evidence that there is now more support for the role of the pharmacist in treatment of minor ailments. The studies mentioned above, however, do not seem to distinguish or compare support for self treatment of minor ailments by members of the public and pharmacists treatment of minor ailments.

The support given by GPs to pharmacists' role in treatment of minor ailments are not without reservations. The reasons for these reservations are not discussed to any extent in the studies to date, however, references are made to the lack of awareness of the availability of OTC medicines by GPs, lack of evidence on the efficacy of OTC medication[228], commercial influences on pharmacists leading to biased advice[224,226], publicity over the criticism of pharmacists competency by consumer association and academic researchers[159] and the possibility that pharmacists' involvement in minor ailments would create extra work for GPs either in terms of increased referrals or in terms of harmful advice which would ultimately be dealt with by GPs[226].

2.6.6 Provision of information concerning medication to patients

GPs support for provision of information concerning prescription medication has also been shown to vary. Nearly all the studies reported GPs to be in favour of pharmacists providing information on the use and storage of medicines and information which would encourage compliance by reinforcing the doctor's advice. However there was much less support for pharmaceutical consultations which would lead to informing the patient about the use of the medicines and possible side effects[166,181,226,229,230].

Two qualitative studies have shed more light on the attitudes of GPs towards patient counselling by pharmacists. Harding et al reported on possible encroachment of pharmacists on GPs role. GPs in their study were only supportive of pharmacists giving a broad description of what medicines do. They were not supportive of suggestions that pharmacists should discuss a patient's therapy in any detail. The reason for these views were a lack of knowledge and a lack of access to the patient's history[222]. Smith in a study of GPs views on the role of the pharmacist relating to benzodiazepines[171,172] reported similar findings to Harding. In addition she found that many GPs were unaware that the issue was of concern and interest to pharmacists. GPs were generally

happy with pharmacists reinforcing the advice that the GP had provided to the patient. Some GPs viewed the pharmacist's role as that of accurately dispensing medication leaving sole responsibility for the provision of information to doctors. The only advice acceptable to the GPs with this view was advice concerning drowsiness and advice not to drink alcohol. Other issues relating to the advisory role of the pharmacist that were revealed included any advice that the pharmacist would give may make the patient lose confidence in the doctor and that this is considered as an intrusion into medical affairs[172]. Interestingly Smith found that pharmacists were more likely to report this view than medical practitioners.

2.6.7 Attitudes towards pharmacist involvement on prescribing issues

The recommendations for pharmacists involvement in prescribing issues are numerous (see section 1.6). Originally these recommendations focused on issues relating to cost of medication, PACT analysis, formulary development, and wastage of medicines. More recently, however, selection of medicines and dosages by pharmacists following an initial medical diagnosis has been suggested as well as management of repeat prescriptions for chronic conditions by pharmacists and monitoring of adverse drug reactions. The more recent suggestions are closer to the clinical pharmacy model originating in the hospital setting and imply a more autonomous role for the pharmacist.

The day to day involvement of pharmacists concerning prescribing issues has already been discussed in terms of the nature of contact with GPs. A number of researchers showed that this involvement mainly concerns product details such as availability of the product, dosages and drug interactions [172,178,222,231]. Despite the similar views of GPs and pharmacists relating to prescribing practices[175,177], co-operation and involvement of pharmacists in issues such as the interpretation of PACT has shown to be limited[175,176,178].

Once again GPs' views of pharmacists' involvement in prescribing issues has been shown to vary. Spencer and Woodward both reported support of over 60% of GPs for pharmacists providing cost effective information on prescribing[159,226]. However when GPs have been asked if they would like pharmacists to analyse prescribing using PACT,

there has been less support. Sutters reported that 64% of the GPs in her sample would not like collaboration on this basis[175]. Bond reported only 28% of GPs were in favour of pharmacists interpreting PACT[224]. The proportion of GPs supporting such collaboration only rose to 48% of GPs when it was implied that the advice of the pharmacists would be funded by the NHS[224].

2.6.8 Factors predictive of GPs views on the extended role of the pharmacist

The views of GPs towards the suggested roles for pharmacists have been investigated in terms of the characteristics of GPs surveyed.

Dispensing doctors

GPs who practice in dispensing surgeries have consistently been found to be negative to any of the suggested roles for pharmacist[166,181,230,232].

Fundholders

Erwin et al found greater support for deregulation of medicines and the involvement of pharmacists in treatment of minor ailments[227].

Gender

Gender of GPs affected attitudes to some of the roles suggested but not to others. Bond found that female GPs were more likely to favour advice on storage of medicines within the surgery and more in favour of a funded pharmaceutical advisor to advise GPs. Female GPs, however, were less likely to favour pharmacist controlled repeat prescribing or NHS funding of medicines supplied on an emergency basis by pharmacists[224].

Age

The effect of age was inconclusive in the survey by Bond[224]. The only statistically significant difference found in Bond's survey was that older GPs were less likely to want pharmacists to review the repeat prescribing regimes of individual patients. Rogers found a trend towards favouring of pharmacy held PMRs with younger GPs. In addition younger GPs were more in favour of pharmacists holding information on the clinical condition of the patient[232]. Begly found that GPs who had been registered for

less than 20 years were more supportive of pharmacists providing extended role services such as counselling on medication use, supplying medical appliances and Total Parenteral Nutrition (TPN) management. These GPs however showed less support for pharmacists in pain control management[181].

Practice size and location.

These characteristics appeared to affect the attitudes of GPs towards some of the roles. The number of partners in the practice had the greatest effect. GPs in these practices were more likely to favour a number of the suggested roles [166, 227] .

Frequency of contact

Begley reported that GPs who had contact with a pharmacist in the previous week were more supportive of pharmacists providing domicilliary counselling on drug use, supplying appliances and managing. There was less support however in pain control management TPN[181]. GPs who had more contact with pharmacists were more likely to report that pharmacists had an influence on their prescribing[178].

Participation in joint postgraduate meetings, liaison groups or research projects.

A number of suggestions has been made to develop the relationship between pharmacists and GPs. These include participation in joint postgraduate meetings[230,233] and liaison groups[123,125,140,230,233]. GPs who have participated in these meetings seem to be more supportive of the role of the pharmacist in primary care. The changing attitudes of GPs towards pharmacists has also been observed in a number of projects which have implemented some of the roles suggested by for pharmacists[229,234].

2.6.9 Summary

GPs are generally conservative towards the extended roles of pharmacists. They favour an extension of the traditional roles of pharmacists such as advice on safe storage of medicines and advice aimed at increasing compliance of patients with medication by reinforcement of doctors' instructions. Similarly GPs welcome information from pharmacists relating to product details, their availability and their formulations.

Advice given to patients independently by pharmacists is received with less support. Independent health screening and its associated advice is also not favourable. Advice relating to a patient's therapy and independent clinical activities such as selection of

medicines and management of repeat prescriptions by pharmacists is received with less support.

The views of GPs on certain roles, especially the more clinical pharmacy roles, seem to be independent of the number of contacts GPs and pharmacists have, and the closeness of their relationships or working proximity. GPs' characteristics such as age and gender have not been shown to have an effect consistently. The only characteristics which has consistently shown to have an effect is if GPs practice in dispensing surgeries, in which case there is much less support for the role of the pharmacist.

The concerns of GPs with the extended roles of the pharmacist relate to the ability and knowledge base of the pharmacist, the pharmacist's commercial environment which is thought to lead to biased advice, the isolation of the pharmacist from other members of the health care team and the potential overlap of the new roles of pharmacists with the traditional roles of GPs. A particularly good example of this is found in the article by Bond et al[224]. They reported that GPs in the workshop held to discuss the results of the survey were concerned that the words, "consultation" and "patients" were used to describe contact between pharmacists and the general public. The GPs indicated that these words had connotations of a medical led interchange and there was fear that the GP's role could be eroded.

Several researchers have suggested that the reason for these view lie in the isolation of the pharmacist from other members of the health care team which have led to misconceptions about their training, skills and motives[224-226]. This view is supported by the change in GP attitudes following liaison groups and participation in projects in which pharmacists are brought into the health care team (See Table 8).

These findings have led researchers to conclude that the extension of the role of the pharmacist will only progress with the support of the medical profession. Bond recommends that roles should be identified that will give pharmacists job satisfaction whilst at the same time being acceptable to GPs[224]. Harding, argues that these favourable roles at best will lead to a role for the pharmacist as the "prescriber's drug expert" providing product related information. This may give some job satisfaction to the pharmacist whilst at the same time not impinge on the role of the GP, however,

these roles will not realise the full potential of the skills of pharmacists in patient care. He suggests for this to be realised pharmacists, GPs and others must participate in establishing outcome measures for health services and individual patient therapies[222].

Table 8 Studies investigating the views of GPs on the existing and recommended roles of pharmacists

Reference	Method Sample	Main findings and comments
Morley,A; Jepson,MH; Edwards,C; Stillman,P (1983)[225]	Postal questionnaire. Pilot sample: 140 GPs in Birmingham FHSA. Main study sample: random sample of 1500 GPs in North East England, West Midlands and South East England.	Response rate was 40%. GPs were asked if the counter prescribing of the pharmacist should be decreased or increased. 60% felt that it should stay the same, where as 32% felt that it should be increased. 40% of the GPs said that the pharmacist was not a member of the primary care team. This was thought to be because of lack of communication. 75% thought that it would be beneficial for pharmacists and GPs to participate in post-graduate education. GPs were in favour of some conditions being treated by pharmacists such as coughs, colds and flue symptoms. Others conditions such as cystitis and piles were considered unsuitable. Hydrocortisone cream was considered suitable for the treatment of aphthous mouth ulcers but not skin conditions treated by pharmacists. 85% were in favour of a notification card referring patients to the GPs. There was concern over the misuse of drugs such as dihydrocodine if de-regulated and unregulated pharmacist advice leading to non treatment of conditions.
Spencer,JA; Edwards,C (1992)[226]	Postal questionnaire. Sample: 1 in 6 randomly selected GPs working in FHSAs in the Northern, Oxford and West Midlands regions.	Response rate of 68.4%. There was no difference in the response rate between the regions and so that data were aggregated. Attitudes to pharmacists role varied with 81% being in favour of reporting drug reactions to 36% being in favour of pharmacists supervising repeat prescriptions to 13% in favour of pharmacists screening pre-school children for height and weight. Attitudes to pharmacists prescribing of certain medication also varied. 87% in favour of pharmacists prescribing co-dydramol for toothache to 11% in favour of pharmacists prescribing Cimetidine. Pharmacists were seen to be a good first point of contact for health education by 68% of the GPs. 73% of the GPs thought that communication with the pharmacist was very good. There seemed to be a lack of consensus with the statement that pharmacists should stick to dispensing and not venture into other areas of medicine (34% agreeing with the statement and 45% disagreeing). 50% of the GPs agreed that they should be able to dispense. The authors conclude that GPs would support an extension of the role of the pharmacist but only to a limited number of activities.

Table 8 continued

Reference	Method Sample	Main findings and comments
Blenkinsopp,A; Jepson,M; Drury,M (1991)[110]	Collection of referral cards and GPs views of the referral. Study setting: a small town in the West Midlands. All Six community pharmacists and all 15 general practitioners based in 4 medical practices took part in the study.	A pilot scheme was set up to evaluate a notification card to be used by community pharmacists when referring patients to their general practitioner, with the aim of improving communication.. During the 18 month study period 120 cards were issued by the pharmacists. The majority (71%) of the patients advised to see the GP did so. 14 cards (12%) were issued for suspected ADRs. The 56 referral notes that were collected were rated by the GPs as significant in 88% of the cases. In 84% of the case the GPs thought that the card was useful. The card was received positively by patients, doctors and pharmacists.
Smith,F (1996)[228]	Postal questionnaire. Pilot study using a group of GPs. Main study 118 GPs randomly selected from FHSAs in the Greater London area.	Response rate was 48%. No difference was observed in sex or practice size of non-responders. There were differences in desired recommendations for referral. However most respondents recommended direct referral for a small proportion, i.e. 60% believing that less than 20% of the 62 listed symptoms needed direct referral. the mean number of symptom groups that GPs thought required no referral at all was 26 or 42% of the total symptoms. So the majority felt that many of the symptoms were suitable for management by pharmacists. The referral rates of pharmacists were compared with those expressed by GPs these coincided.
Erwin,J; Britten,N; Jones,R (1996)[227]	Postal questionnaire. Sample: all 250 Fundholding practices in 8 FHSAs and random sample of 250 urban non-Fundholding and 350 rural non-Fundholding practices. Questionnaire was sent to one randomly selected GP in each practice.	Response rate 61%, with more Fundholding practices responding. The study used the section from Spencer et al's questionnaire relating to the deregulation of certain medicines. There was significantly more support for all of the medicines in 1994 compared to 1990. In particular there was more support for the deregulation of Chloramphenicol eye drops, Cimetidine, Beclomethasone nasal spray. Although there was an increase in support of deregulation of some antibiotics, the majority of the respondents were not in favour of this. Fund holders were more in favour of the deregulation of medicines and it is suggested that this is because they don't want to deal with many of the minor symptoms. Explanation for the change is suggested to be the greater awareness of the cost of drugs, the need for cost containment and self medication as a curb on the pressures of doctors. Also more awareness of the role of the pharmacist and the support for his extended role.

Table 8 continued

Reference	Method Sample	Main findings and comments
Woodward,J (1992)[159]		41 GPs and 20 community pharmacists working within the same FHSA were sent a questionnaire comprising 10 proposals on the role of pharmacist and GP prescribing derived from the white paper promoting better health. The results showed that there was a wide area of agreement between the two professions in the locality, mainly in favour of the white paper proposals. It is interesting that GPs were not in favour of pharmacists keeping records of medication. The only activity which would give them clinical independence.
Edwards,C; Spencer,J (1992)[160]	Postal questionnaire. Sample: 1 in 6 randomly selected GPs working in FHSAs in the Northern, Oxford and West Midlands regions.	This is a follow up to the survey reported above. This article describes the qualitative quotes from the GPs. The authors try and explain some of the reasons behind the attitudes of the GPs. Some GPs felt that their work would be duplicated by the pharmacists. That the pharmacists were not qualified to carry out other services and that instead of their work reducing GPs time, it might increase it with inappropriate advice and referrals. The main conclusion by the authors is that pharmacists are not in the primary care team and this is why there is only limited support for their extended role. They suggest that GPs should teach pharmacists and they develop a collaborative partnership. They also describe possible competition between the two groups.

Table 8 continued

Reference	Method Sample	Main findings and comments
Gerrett,D; Wilcocks,AJ (1991)[230]	Postal questionnaire. Assessment of counselling role of pharmacist for individual patients. Pilot sample: GPs not included in main survey. Main study sample: 276 GPs within Derbyshire health authority. 24 GPs randomly selected to assess counselling role of pharmacists for 100 consecutive patients.	Response rate for survey was 74%. There was no significant difference in age, gender, number of years in practice, registration to dispense and attendance to postgraduate education of non-responders. A number of situations were presented to GPs and they were asked if there was a role for the pharmacist in counselling on medication. GPs were generally more in favour of counselling relating to compliance, administration and reinforcement of instructions and provision of information on side effects, rather than physiological dependence, the reason for the prescribed medication and replacement of a previous medication. Response rate for appropriateness of counselling role of the pharmacist was 67% (24 GPs). An element of the counselling role of the pharmacist was apparent for 9.2% of the patients. This translates to 3-4 patients per day. Dispensing GPs saw no role for the pharmacist.
Smith,FJ (1993)[172]	Semi-structured interview schedules with 22 randomly selected GPs in one FHSA.	GPs were asked details of the extent of the use of benzodiazepines, if they thought there was a problem with their use. Also the number and nature of contacts with pharmacists, their views on the role of the pharmacist in relation to benzodiazepine use. 21 reported contact with pharmacists, to clarify prescriptions. 13 of these said that this was a weekly affair. 11 reported contact with community pharmacists concerning availability of products, only one contacted pharmacists regarding clinical activities. 21 reported that they did not know about the practice of pharmacists in relation to giving advice. No GP had talked to the community pharmacist regarding benzodiazepine prescribing. 9 said that they would be happy for pharmacists to advise clients on benzodiazepines, the main purpose of which was to reinforce the doctors advice. 2 GPs thought that it was the sole responsibility of the doctor to advise. Response of pharmacists and GPs to 18 statements were then compared. Pharmacists were significantly more likely to agree that their involvement was an intrusion on the GPs affairs. They were less likely to believe that prescribers would welcome pharmacists' interventions. Also interesting is that GPs had not ever considered the role of the pharmacists in relation to health care. Further evidence for not being involved in the medical division of labour.

Table 8 continued

Reference	Method Sample	Main findings and comments
Begley,S; Livingstone,C; Williamson,V; Hodges,N (1994)[181]	Postal questionnaire. Focus groups with 10-12 members of each profession. Pilot sample of 20-30 professionals. Main study sample: 1000 questionnaires sent to randomly selected community pharmacies. 152 questionnaires sent to GPs and 295 questionnaires sent to district or practice nurses.	Response rate for GPs was 77% and for nurses was 72%. Both were in support of pharmacists counselling on medication but were not happy with pharmacists providing chemotherapy services. There was more support from young GPs in pharmacists providing counselling on medicines, but less support from them in pharmacists managing a pain clinic. It was shown that contact between pharmacists and GPs is pharmacists initiated and by comparison the nurse is contacted less often. Nurses were more frequently opposed to pharmacists offering services than GPs.

Table 8 continued

Reference	Method Sample	Main findings and comments
Harding,G; Taylor,K (1994) p.44-56.[222]	100 health centre pharmacies compared to community pharmacies. In addition in-depth interviews with health centre pharmacists and GPs.	They found that the interactions of health centre pharmacists and other health care professionals was greater than those of community pharmacists. In depth interviews however revealed that many of the structural constraints that the community pharmacists experience was also present in the health centre pharmacies, including the procedure of accessing the GPs via the receptionist, the lack of social interaction with GPs at coffee breaks and the need for locum cover before the pharmacist could leave the pharmacy. Harding and Taylor found that the GPs would take advantage of the close proximity of the pharmacist in the health centres and would contact the pharmacist in relation to prescribing details such as drug dosage and quantities. GPs also valued the checking role of the pharmacist, claiming that health centre pharmacists would know their prescribing habits and they would be able to spot errors. Harding and Taylor also found that there was contradictory opinions concerning professional relationships. Both GPs and pharmacists described their relationships as satisfactory with the GPs indicating that they would not hesitate to use the pharmacist with queries relating to prescribing details. The pharmacists, however, described that the relationship was satisfactory in the sense that they got on well with the GPs but they indicated that they were frustrated that their potential contribution to cost effective prescribing was not realised and utilised by the GPs. There was also concern about boundary encroachment of GPs domain by pharmacists, in that the GPs were unhappy about the pharmacists dispensing knowledge to their patients, they were concerned that the pharmacists did not give good advice and did not know the patient history. The authors conclude that even in the setting of the health centres, the communications of pharmacists and GPs were related to products rather than therapies and so did not impinge on the boundaries of GPs and the dominance of the medical profession was maintained. The authors suggest that the organisation of the NHS and introduction of medical audit and emphasis on cost effective and quality prescribing, provides pharmacists working in health centres to become the "prescribers drug expert". However to develop their professional relationships pharmacists must become more directly involved in patient care and not just become informational resources. They suggest that this could be achieved through collaborative health promotion projects in which outcome measures are established as part of the evaluation

Table 8 continued

Reference	Method Sample	Main findings and comments
Sutters,CA; Nathan,A (1993)[166]	Postal questionnaire. Pilot sample: 20 pharmacists and 20 GPs. Main study sample: all community pharmacies and GPs in two FHSAs, Enfield and Haringey and North Yorkshire.	Response rate for pharmacists was 67% and for GPs 42%. There was a large variation in response rate for GPs from the two FHSA (24% and 59%). There was an absence of doctor dispensing from the sample of GPs in the Enfield and Haringey sample. Overall there was less provision of diagnostic tests in the rural areas by community pharmacists. Agreement was sought on 7 statements concerning the role of the pharmacist. Pharmacists were significantly more in favour of being involved in the selection of prescribed medicines, being part of the primary care team, being remunerated for treating minor ailments and referring patients to GPs, being given more responsibility for treatment of minor ailments by further deregulation of medicines, and feeling that the extent of consultations with patients for minor ailments being underestimated. Interestingly there was more support from GPs than pharmacists in favour of pharmacists reporting adverse drug reactions. In all cases GPs from dispensing practices were less in favour of pharmacists' involvement. GPs rated their relationship with pharmacist higher than the pharmacists. There was no difference between dispensing and non-dispensing practices. Only 35% of Pharmacists said that they worked closely with GPs, whereas 54% of GPs indicated that they worked closely with pharmacists. There was no difference in past collaboration with pharmacists between Dispensing GPs and non-dispensing GPs. Reasons for lack of collaboration included, no time (38%, 41%), no opportunity (70%, 50%), pharmacists knowledge being inadequate (27%, 9%), pharmacists input not wanted (77%, 17%), bad experience with GPs/ CPs , not considered the role of the pharmacist (3%, 33%), conflict of financial interests (18%, 17%) and pharmacists not being paid for it. More GPs (82%) in N. Yorkshire did not want a pharmacists input and more GPs in Enfield and Haringey (70%) thought that it was not the role of the pharmacist. There was more support from GPs for activities involving patient compliance, health promotion and ADR monitoring than there was for health screening, and provision of drug information by pharmacists. Dispensing doctors were significantly less favourable to these roles. Both professionals recognised the need for more inter-professional collaboration if the pharmacists role is to be mutually extended especially into clinical areas. It was concluded that GPs wanted an information source whereas the pharmacist wanted to influence prescribing.

Table 8 continued

Reference	Method Sample	Main findings and comments
Bond,CM; Sinclair,HK; Taylor,RJ; Duffus,P; Reid,J; Williams,A (1995)[224]	Postal questionnaire. Pilot study used to design a questionnaire, a workshop of 7 pharmacists and 6 GPs determined the relevance of the questions. Questionnaire piloted to a sample 50 GPs from Tayside region. Main study sample: All 314 GPs in the Grampian. Workshop of 5 GPs and six pharmacists discussed possible reasons behind the findings.	Response rate was 85%. 8% had attended an inter-professional discussion group with community pharmacists. 11% had contact with community pharmacists regarding formulary preparations. 43% used community pharmacies for repeat collection and delivery. The desirability of a number of prescribing related tasks varied with 64% desiring advice on storage of medicines in the surgery and correcting dosages on prescriptions to 74% against selection of medicines by pharmacists after initial diagnosis. Desirability of pharmaceutical tasks again varied with 91% desiring a disposal of unwanted medicines and 78% desiring the provision of compliance aids within the NHS to 24% rating as undesirable diagnostic testing and screening by pharmacists. Older GPs were less likely to want pharmacists to review repeat prescriptions. Practices with a higher number of GPs were more likely to want advice on prescribing. The post workshop group identified several factors including, infringement on professional boundaries, loss of professional control, damage to doctor patient relationship, concern over the use of the word patient and consultation when referring to advice given by pharmacists to general public, ignorance of pharmacist training and knowledge, concern about pharmacists commercial interests and uncertainty about legal liability of the pharmacist. It suggests that pharmacists roles that are to be developed must be acceptable to GPs and at the same time provide professional job satisfaction to pharmacists.

Table 8 continued

Reference	Method Sample	Main findings and comments
Nathan,A; Sutters,CA (1993)[175]	Postal questionnaire. Pilot sample: 20 pharmacists and 20 GPs. Main study sample: all community pharmacies and GPs in two FHSAs, Enfield and Haringey and North Yorkshire.	This was a further report of the study described above. In particular it reported questions relating to rational prescribing. Both GPs and pharmacists were asked if they had collaborated on issues to do with PACT analysis, provision of drug information, and assistance with formularies. Less than 10% of both pharmacists and GPs indicated that they had collaborated on those issues. Asked if they would like to collaborate, pharmacists were more keen to do so with 50% of respondents indicating support for PACT analysis, 42% for drug information and 52% for formularies. The corresponding percentages for GPs were 21%, 35% and 33%. Dispensing GPs were not in favour of any such collaboration. Concerning support for statements relating to practice formularies, there was agreement between GPs and pharmacists. Concerning support for statements regarding rational prescribing, again there was general support except for pharmacists involvement in clinical audit of patients. In terms of support for statements regarding over prescribing, pharmacists agreed more often with statements such as the lack of time to talk to patients, to cut down on return consultations, and GPs ignorance of total medication of the patient. Overall 65% of the pharmacists thought that GPs over prescribed. There were also differences on attitudes towards generic prescribing and medicines. Doctor dispensing, not in favour of any pharmacy activities, GPs on the whole do not like clinical activities by pharmacists. pharmacists rate their relationships lower than GPs.
Sutters,CA; Nathan,A (1993)[180]	Postal questionnaire. Pilot sample: 20 pharmacists and 20 GPs. Main study sample: all community pharmacies and GPs in two FHSAs, Enfield and Haringey and North Yorkshire.	This is the third paper of the study. Interesting things are views of GPs on the pharmacists role. Pharmacists want a role in counselling and advice giving on drugs (88%), GPs are not as supportive (70%). Also they were in favour of pharmacists monitoring compliance (84%, 74%)Pharmacists want to monitor patients quality of life (63%), GPs are not in favour of this (41%). Pharmacists want the Pharm industry to provide education for them (76%), GPs are as supportive (58%). GPs were in favour of pharmacists referring patients to them for more serious conditions or where a POM was required (59%). The paper discusses the relationship between the pharmaceutical industry and community pharmacies and describes the difficulties that pharmacists face in developing their clinical role. It is seems that the assistance of the pharmaceutical industry is being sought to get pharmacists and GPs together.

Table 8 continued

Reference	Method Sample	Main findings and comments
Jepson.MH; Strickland-Hodge,B (1995)[178]	Postal questionnaires of GPs and pharmacists. Sample 500 randomly selected GPs and pharmacists from national registers.	Response rate to GP survey was 54% and to pharmacist survey was 58%. Objectives: to measure the extent and nature of inter-professional contacts, to examine if GPs and pharmacists think pharmacists have any influence on prescribing and to see if the nature and extent of contacts has any bearing on any influence on GPs prescribing. 59% of pharmacist and 71% of GPs said that they had spoken contact between 1-5 times in the past week. 33% of the pharmacists reported that they had more frequent contact compared to 4% of the GPs who reported this. 25% of the GPs said that hey had not spoken to the pharmacist over the past week. There were very few face to face contacts in that the majority had not visited each others premises. The purpose of the contact: 65% for patients drug therapy, 44% for delivering stock to the pharmacy, 33% for pharmacist referral, however in terms of clinical issues such as PACT, asthma clinics, Diagnostic tests etc., there was no contact. 27% of the pharmacists felt that they had an influence on GP prescribing in addition to correcting prescriptions. 30% of the GPs said that this was the case. Those who had more contact with GPs reported greater influence on prescribing. The influence on prescribing related to alternative products, products used to improve compliance , drug tariff and legal issues etc.. The same was reported by the GPs.
Holden,JD; Wolfson,DJ (1996)[177]	Postal questionnaire. Pilot study. Main study sample: all 67 community pharmacists and all 173 GPs in St. Helens and Knowsley FHSA.	Response rate for pharmacists was 84% and for GPs was 60%. This is a very good piece of work on pharmacists and GPs attitudes. Interesting that both GPs and pharmacists though that there were issues to do with quality of prescribing. There was again disagreement between the role of the pharmacist. GPs favoured a more conservative role while pharmacists wanted a wider role. Interesting that GPs favoured nurses working on chronic diseases rather than pharmacists.

Table 8 continued

Reference	Method Sample	Main findings and comments
Rogers,PJ; Rees,JE (1995)[232]	Postal questionnaire. Pilot sample: 20 GPs in the Guilford area. Study sample all GPs in Avon and Devon FHSA.	Response rate was 64.5%. 59% considered that pharmacists should keep PMRs, a higher percentage thought that patients should keep their own records (73%). Most thought that this should be kept by GPs (91.4%). There was a significant difference between dispensing and non-dispensing GPs in that dispensing GPs were less favourable of pharmacy kept PMR. There was a trend towards favouring pharmacy held and patient held records with increasing year of registration. Rural and dispensing GPs were in less favour of pharmacists having access to patient records. Patient registration with a pharmacy was thought to be beneficial for certain groups by 72% of GPs. There was 58% agreement that clinical conditions should be kept on PMRs in the pharmacy. Again dispensing practices were not in favour of this and younger GPs tended to be more favourable to this. 48% of GPs thought the provision of information leaflets would improve compliance, 15.3% thought that it would worsen compliance and 32% were unsure of its affects on compliance. 53% of the GPs said that they always welcomed information from pharmacists on potential drug interactions.
Hughes,CM; McFerran,G (1996)[176]	Postal questionnaire to 100 randomly selected pharmacists in Northern Ireland.	Response rate was 66%. 78.7% felt that their involvement in formulary development was important. Almost two third said that they were willing to approach GPs in relation tot his and 27% said that they already had contact regarding this. Most rated their working relationship with GPs as useful or very useful. The barriers reported include remuneration and training. Also useful in comparing rates of interaction with GPs.
Hughes,CM; McFerran,G (1995)[231]	Postal questionnaire. 100 randomly selected GPs from Eastern Health and Social Services board in January 1995.	Response rate 65%. 58.5% agreed that community pharmacist involvement in formulary development was important. 63% said that they would be willing to approach a community pharmacist in relation to this work. 12.3% had already contacted pharmacists in relation t formulary development. 83% of the GPs saw the pharmacists role in formulary development as useful in improving prescribing, 52.3% as useful to discuss treatment options, 50.7% useful in reducing doctor's workload, 77% useful for cost advice and 62.9% useful to develop a closer working relationship.

Table 8 continued

Reference	Method Sample	Main findings and comments
Khan,T; Archer,J (1994)[114]	Quantification of ADR reports by pharmacists over 6 weeks. Survey of pharmacists, GPs and patients. Sample 10 pharmacists, 20 GPs and 50 public.	96 completed forms were received. The nature of ADRs were reported. Most pharmacists wanted to be involved in the scheme, however they wanted the form to be sent directly to the GPs or accompanied with a form to the CSM. 62% of the GPs thought that community pharmacists should have an active role in ADR reporting. 77% felt that there was no need for a separate reporting scheme. Their main worry was "that pharmacists lacked understanding of underlying pathology and clinical management". 84% did not mind pharmacists counselling patients on ADRs.
Kennedy,EJ; Blenkinsopp,A; Purvis,J (1994)[125]	Semi-structured qualitative interviews. 3 pharmacists and 5 GPs participating in a liaison group.	Important findings include that certain patients could be targeted by pharmacists, patients on repeat prescriptions and those who were well controlled were least likely to be monitored by the pharmacists. Individual attitudes, confidence and knowledge were important to the success of the scheme. The pharmacists felt that they were regarded as a member of the primary care team. The five GPs felt that the pharmacists had made a positive contribution. They welcomed the reinforcement of advice by pharmacists. The pharmacists felt that the support of the GPs to the scheme had made an important difference to the success of the scheme. Future recommendations about models of collaboration between community pharmacists and GPs were made .
Kennedy et al (1997)[221]	Self reporting of contacts by both pharmacists (27) and GPs (36) in one week	A mean of six initiated or received contacts by each health professional in a week. GPs initiated 3 contacts and pharmacists initiated 9 contacts per week Over half of all contacts was prescription related and initiated by pharmacists to clarify prescription details. Contacts about patient care formed a small proportion. A good piece of descriptive work. There is concern about self reporting as a method, but it is only descriptive and for that reason it is useful.
Roberts,K (1986)[229]	Postal questionnaires of pharmacists and GPs as well interviews with patients. Samples: 100 randomly selected GPs.	Response rate to GP survey was 69.1%. GPs agreement to several statements was sought. 71% of the GPs thought that a pharmacists intervention would help patient comply with their medicines, 77.4% thought that such an intervention would help spot potential drug-drug reactions, 59.7% thought that pharmacists involvement would be beneficial in detecting and reporting ADRs to prescribed medicines and 71% to OTC medicines. 87% of the GPs thought that they had enough time to counsel patients on medicines. 87.1% were in favour of pharmacists providing verbal advice to patients, while 71% were in favour of pharmacists providing written advice. 58% of the GPs thought that a domiciliary visit by pharmacists would help housebound patients with compliance. All the GPs involved in the indicated greater support for the pharmacists involvement. However before the study only 18.2% thought that the pharmacist was a member of the primary care team.

2.7 Summary and critique

The literature review here has shown that the early research articles tried to quantify the role of the pharmacist in terms of responding to symptoms, health promotion and provision of information on prescribed medicines at the point of dispensing. The methods used have consisted of estimates of activity in surveys of pharmacists and the general public; self reporting; analysis of tape recording; and covert research. The quality of these activities have been judged according to guidelines set by the RPSGB or panels of experts. In all of the activities large variations have been found both in terms provision and quality of the services. Despite these findings researchers have paid little attention to the reasons behind these variations. In general the studies are limited due to their sample sizes, methods of selection and missed opportunities for advanced analysis.

The articles on the attitudes of pharmacists towards their extended roles found that pharmacists were generally in favour of these proposals. In particular there was more support for a role in treatment of minor ailments, rather than health promotion, provision of detailed information on prescribed medicines and prescribing services. The articles reported a number of barriers to the extension of the role of the pharmacists including: remuneration; training; lack of confidence; relationships with GPs; lack of time; and lack of access to medical notes. These factors have been considered in isolation and the relationships between them have not been explored. In the articles, there was a lack of distinction between provision of new services as compared to the pro-active provision of advice. In addition there were few national surveys of pharmacists, the exceptions only considering one of the extended roles. Finally the sampling for the surveys have been taken from the register of premises rather than the register of pharmacists, which may have contributed to the consistently low representation of employee pharmacists.

Consumer attitudes toward the role of the pharmacist have also shown great variation. In general there is support for a role in responding to symptoms as compared to a role in health promotion. There is also support for provision of information on prescribed medicines, but reports of low incidence of receiving such information. Services closest to the traditional role of the pharmacist such as prescription collection and delivery receive

the greatest support whilst newer more clinical services receive less support. Similarly GPs are generally conservative towards the extended roles of pharmacists, favouring extension of roles ensuring safe storage of medicines and advice aimed at increasing compliance with medicines.

As explained in chapter 2, PPR is a relatively new sub-discipline and as such there are methodological issues which apply to the majority of the articles reviewed here. Firstly the articles are influenced by a need to justify the existing and future roles of the pharmacist. In addition many of these projects are evaluated by pharmacists who are also responsible for providing the services The projects aimed at extending the role of the pharmacist such as those described in section 2.2, are not evaluated to the standards set by HSR. For example the sample sizes are small, non randomised and the measures lack external validation and are thus not considered reliable. The analysis of the evaluations rarely go beyond bivariate tabulations. Discussions of methodology, generalisability and limitations of the study are also rare.

The implications of the literature review on this project which aims to investigate the factors affecting the extended role of the community pharmacist, are many fold. Most importantly is the anxiety that the majority of the findings and conclusions from the literature may not be reliable. Qualitative methodologies are particularly suited to subject areas where previous research has been limited. The qualitative stage in this project was therefore used to inform the design of a national survey of the extended roles of community pharmacists. In addition there was a need for the survey to be well conducted and analysed using advances statistics. The methodological considerations, the techniques employed and the analysis in this project are described in chapter 4. The findings of this investigation are presented in chapter 5, 6 and 7 and their implications are discussed in chapter 8.

CHAPTER 3 SOCIOLOGICAL PERSPECTIVES ON THE "EXTENDED ROLE" OF THE PHARMACIST

3.1 Introduction

The evolution of the role of the pharmacist, as shown in chapter 1, has been influenced by the occupation's struggles with a number of other occupations. The focus of these struggles has invariably been the protection of the interests of members of each occupation. Chapter 2 has also shown that the early studies in PPR were influenced by the researchers' aims of raising the status of pharmacy. Indeed the development of PPR itself gained momentum with the calls for the extended roles of pharmacists. This situation has been observed by a number of non-pharmacy researchers. Sociologists in particular have advocated that researchers within PPR should take a step back from the occupational efforts to extend the role of the pharmacist[46].

The aim of this chapter is to outline the sociological approaches to pharmacy and sociological reflections on the extended role of the pharmacist. However, in order to review and understand the findings of this literature, one needs briefly review developments in the sociology of occupations.

The sociological studies reviewed in this chapter have provided important considerations for this project. These considerations have not only made the researcher acknowledge the context of the project, but have provided concepts which have helped to provide explanations for the findings of this thesis (See chapter 8).

3.2 Sociological theories of professions

This thesis has followed many sociologists who have acknowledged that the word "profession" is a value-laden concept as it is used in everyday language[235]. When the term is used it is referring to those occupations which are commonly referred to as "the professions" and which possess certain privileges [236].

3.2.1 Trait approach

A number of theories and conceptual frameworks exist in sociology which are used to analyse the occupations known as professions. Early sociological writing on the professions listed a number of "traits" of an ideal profession and compared these to the traits possessed by the occupation in question. Table 9 lists a number of traits considered to be important. The main traits are those of skill based on theoretical knowledge, altruistic service and adherence to a code of conduct[237]. The services of an occupation were also considered in terms of the "needs" of society for those services[238,239]. The trait approach is identified with the "functionalist" approach to the study of occupations and society in general. The premise was that occupations which performed services of great need to society were, in return, given special privileges[238]. Sociologists using these approaches would compare the traits and functions of an occupation with the trait and functions of an ideal "profession". This comparison would then inform the investigators as to whether the occupation in question had "made the grade" of a profession. The main criticism of this approach is the similarity between the listed traits or functions that are investigated and the contents of many professional codes which stress abstract knowledge, altruism, and functional significance. This similarity then led writers to trust the professional codes which they were commenting

on, without recognising the ideological nature of their claims to knowledge, status and other privileges[240].

Table 9 The traits of occupations known as professions[237].

Traits	Brief explanation
Standards of education and training	The occupation determines its own standards of training and education
Socialisation of students	The student goes through a more extensive socialisation experience than students in other occupations
Licensure	Occupational practice is legally recognised by some form of Licensure
Licensing and admission to the occupation	These processes are controlled by the occupational members
Legislation concerning the occupation	This is shaped by occupational members
Occupational privileges	Higher income, power, prestige and can recruit higher calibre students
Evaluation of occupational members	This is carried out by other occupational members and is free from lay evaluation
Ethical code	These define the norms of practice and are more stringent than legal controls
Identification with the occupation	Members have a relatively strong identification with the occupation
The occupation is a terminal occupation	Members are not likely to leave the occupation.

3.2.2 Interactionist approach

The short comings of the trait approach were initially addressed by investigators from the "interactionist" school of thought. As opposed to the "armchair" sociology of the trait approach, interactionists focused and researched everyday activities of members of the occupations especially their dealings with other occupations. In particular Hughes is often quoted as suggesting that the research question should be changed from "what constitutes a profession?" to "what are the circumstances in which people in an occupation attempt to turn it into a profession and themselves into professional people[241]. Attention to individual members' negotiation and bargaining activities led to a focus on professionalisation process.

3.2.2.1 Process of professionalisation

Hughes's writings led some investigators to study the processes involved in professionalisation[242,243]. Other writers, especially Freidson[8], as will be discussed below, followed Hughes' writings more closely and concentrated on the activities of occupational members. The "process" approach advanced theoretical work in this area since it necessitated the incorporation of historical developments, the lack of which are often criticised in the interactionist approach to investigation[244]. The process approach seemed to imply an occupation-profession continuum[245]. Several investigators attempted to identify events in the history of occupations that constitute the process of professionalisation. Caplow[243] identified a sequence involving the establishment of a professional association, a change in the name of the occupation, the development of a code of ethics and attainment of legal restrictions that give exclusive monopoly of the domain to the occupation.

3.2.2.2 typology of professions

The occupation-profession continuum introduced additional categories of occupations and led to sociological study of occupations referred to as semi-professions, para-professions, marginal professions and in particular para-medical professions.

Wilensky suggests a fourfold classification of occupations including: established professions; professions in process or marginal professions; new professions; and doubtful professions[242]. Etzioni describes occupations whose training is shorter, their status less legitimated, their right to privilege communication less established and,

those which have less autonomy than "the" professions as semi-professions[246] . Wardell distinguishes such occupations in the health field into limited, marginal and quasi professions[247]. Limited practitioners are independent of medicine but are limited in that their services are confined to particular parts of the body. Such occupations include dentistry, podiatry, optometry and psychology. Marginal practitioners are those who may treat the entire range of human disease but their status is marginal since their approach to disease is in conflict with orthodox medicine. These include osteopaths and chiropractors. Quasi practitioners include faith healers whose services can not be empirically validated. Wardell's description of the health related occupations hinted the differentiating factors to be the relation to medicine and the position of the occupation in the overall responsibility for health.

Freidson[8] pointed out that the occupations referred to as paramedical are controlled by medicine. Control over such occupations is achieved since much of the knowledge used in their work is discovered by, enlarged upon or at least approved by medicine. In addition the tasks of the paramedical occupations tend to assist rather than replace the work of physicians. This prevents them from achieving full "professional" status. Freidson, however, notes that there is also status associated with holding a position in this division of labour. His work in "Profession of Medicine" showed how the medical profession had attained autonomy and how this had extended into dominance over other occupations.

3.2.3 Neo-Weberian and Neo-Marxist approaches

Despite the apparent improvements on the trait approach to the study of professions, the interactionist study of the process of professionalisation implies that the outcome of the process is a profession, which still requires definition, an activity considered redundant. The interactionist approach is also often criticised for concentrating on the occupational strategies to gain privileges and leads to the criticism of the lack of attention to the wider structures of power which may shape social groups such as occupations. This criticism together with the growing scepticism of studies of professions which preceded the interactionist approach and the lack of historical investigation led to more critical analysis of occupations in terms of social stratification. These investigators tried to apply concepts derived from the work of Marx and Weber

to the analysis of professions and their privileges. These approaches have provided additional theoretical and analytical concepts which can be used to analyse differences and similarities across the privileged occupations and which can be extended to other non-privileged occupations.

The subsequent interactionist studies were influenced by Weber, a focus on social power and a concern with autonomy and dominance of one occupation over another in their interactions. Freidson is one of the most eminent proponents of this approach and tries to define the sources of power drawing attention to the knowledge base of the occupation[235]. Freidson argued that the autonomy of an occupation is dependent upon the power of the state and that the occupation's privileged position is dependent on the influence of the elite that sponsors it. Turning to the professed knowledge base and normative features of the occupation, he showed that these were not constant and stable. These characteristics are used as the basis of arguments for establishing the boundaries of the occupation and those who belong within them[8]. The knowledge and normative features as well as securing the social status of the occupation also provide the potential for defining social reality in the area in which the members function. The knowledge base and technical expertise are also used to define the standards by which their competence will be judged and the extent to which the laity can enter their domain. Following the work of Hughes more closely, Freidson emphasised the occupations known as professions have an "organised autonomy"[248], which reflects their "licence and mandate" , granted by society, to control their work[241]. Their licence grants their right to carry out a distinctive set of activities in exchange for financial goods, and their mandate grants their right to define for others, what is proper conduct of others toward their work. Occupations which had a strong position in terms of protecting their licence and asserting their mandate were seen as professions. Profession was therefore seen as a market niche[249].

Neo-Marxists approaches have, in brief, tried to place the professions in the economic class systems relative to means of production. This line of thought exemplifies another approach in which social power is central: the more control the occupation had over both owning the means of production and the consumption of certain commodities (its services, products or knowledge), the greater would be its economic privileges[250]. The differing approaches can be demonstrated by considering the analysis of the

occupational knowledge base by neo-Weberians and by neo-Marxist authors. Neo-Weberian analysis focuses on the concept of social closure, so the analysis of occupational knowledge base considers the degree to which it could potentially become routinised and subject to definition from outside (i.e. by other occupations), leading to a loss of autonomy, status and position in the market for the occupation's services[251]. Neo-Marxists would describe such developments in terms of "de-skilling" of an occupation, in which the knowledge base becomes redundant and leading to "proletarianisation"[252], in which the members of the occupation lose economic power or position and take on characteristics of the working class.

One of the more conceptually innovative work in the sociology of occupations is considered to be Larson's "The rise of profession*alism*"[253]. This work tries to draw on both Weberian and Marxist approaches. Larson addressed the question of the social strata of the professions and emphasised the ways in which professions attained privileges in their evolution. Her consideration of the implications of the cognitive and normative characteristics of the occupations is influenced by the work of Freidson[8]. The profession's service ideology for example implies a lack of capitalist profit motive, but the status and income of members imply a middle class social position.

Larson's historical analysis draws on Weber's ideas on social stratification highlighting the importance of expertise, qualifications and property as "opportunities for income" in modern industrial society. Social mobility and market control are not reflections of expertise and ethical standards, they are the outcome of a professional project. Larson's work as well as discussing the occupational actions also considers the wider social class structures of society on the development of occupations.

The Neo-Weberian and Marxist approaches have the advantage of taking historical conditions and processes into account as well as addressing the wider social structures. The studies using these approaches however, have been criticised for a number of reasons including: lack of empirical evidence; basing their studies on only one occupation; and in the case of neo-Marxists by taking a positivist approach to their analysis of occupations that claim professional status[240,244,254]. Neo-Marxists propose the formation of professions and the acquisition of special privileges are explained only in terms of Marxist theory[255] . In addition, the social forces that the neo-Marxist and neo-

Weberians propose to address in their historical investigations is criticised for focusing on societal structures rather than work itself[244].

3.2.4 Summary

The above section represent this researcher's understanding of the different approaches to the study of professions. The evolution of the different approaches parallels the history of the different schools of thought in the discipline of sociology[254]. An understanding of these approaches is necessary for reviewing the sociological studies on pharmacy, discussed in the next section.

There is no one definitive theory in the study of occupations known as professions. Freidson explains that this is an impossible task since "the word profession" has different meanings to different groups in society and that those meanings are specific to cultures and specific to historical periods in society. The trait approach with its consideration of characteristics which the occupations themselves professed was shown to be a useful way of defining the characteristics of ideal professions but was redundant as an analytical tool. The focus on the process of professionalisation, implying an occupation-profession continuum, had as its end state a profession but avoided the issue of definition. The same argument applies to those who distinguished between occupations by creating intermediate categories such as semi-professions or incomplete professions. The interactionist approach of studying individuals in the work environment improved on the previous approaches but neglected historical developments and wider social forces. At this point, the study of professions as a separate sociology to the study of occupations was questioned. Instead occupations known as professions were studied with a view of investigating the different ways that occupations competed for power, wealth and status. This approach was then further developed by Neo-Marxist and Neo-Weberian analysis which incorporated ideas of wider social forces in their analysis.

The critique presented in this section leads to agreement with Dingwall et al[249] who suggest that investigators should study different types of occupations, rather than to sit in judgement on whether an occupation holds a certain status or not. In terms of this thesis the approaches derived from Weber and Freidson are most relevant to the

understanding of the issues addressed, especially an empirical focus on every day work of members, the use of division of labour, and developments in the market, in the explanation and understanding of the findings (see chapter 8).

3.3 Sociological studies of the occupation of pharmacy

3.3.1 Occupational Status

The majority of the early studies on pharmacy focused on the occupational status, claiming that pharmacy was an incomplete[256,257] marginal[247,258] or a para-medical profession[7,8,259]. Several explanations have been put forward including: business ideals in the occupation, growth of pharmaceutical technology and the lack of need for the pharmacists' traditional compounding skills; regulations governing the conduct of pharmacy and thus its lack of autonomy; lack of monopoly over its services; relationship with the medical profession, and; its occupational organisation. These are issues that are applicable to other occupations described in the same way as pharmacy. These occupations include chiropody[247] and optometry[8]. Authors, however, have noted distinctive aspects of pharmacy including its educational and organisational system as well as its financial independence of the medical division of labour[7,8,247,260].

The main arguments about the occupational status of pharmacy, however, are centred around the inclusion of the business role of the pharmacist which casts doubt on his/her altruism and service orientation. Service orientation was considered one of the main traits of professions. Thus for many sociologists of that time, professional and business interests were at opposite ends of the continuum.

3.3.2 Business and Professional ideals

An early investigation of pharmacy was carried out by Thorner[261]. Initially, he described community pharmacy as possessing two distinct functions, a professional function, the

preparation of medicines, and a commercial function, the distribution. He recognised the potential for conflict between the professional and commercial considerations in pharmacy. Thorner considered the ethical code and its relationship to the two functions of the pharmacist. An ethical code, at that time, was considered by many as a qualifying trait of a profession since it gave assurances of integrity of the occupational members in that they would not take advantage of their privileged position and exploit their clients. Thorner provided an idealised account of the internalisation of the professional codes and norms of behaviour. These norms of behaviour subordinated the economic interests, acknowledged to be present, to occupational obligation of safeguarding the interests' of members of the public.

Thorner's description of internalisation of the ideal codes of conduct by pharmacists did not satisfy other investigators. Several studies on pharmacy hypothesised the presence of both professional and business ideals in pharmacists, and that the presence of both these ideals would create role conflicts. Inherent in these approaches was that the business ideal would be detrimental for the consumers of pharmacy services.

The presence of different role orientations was confirmed to a degree by a number of studies[262-268]. The studies used similar structured questions (see Table 10) to measure role and personal value orientations.

These studies described pharmacists in terms of a typology in relation to their degree of orientation toward professional and business roles. However, there were large variations in values or orientations towards the two roles. Chappel et al found that there was a lack of correlation between the two role orientations so that they co-existed[268], whilst Kronus, contrary to her hypotheses, found that altruism pre-dominated in the business setting[266].

Table 10 Questions used to measure professional, business and personal value orientations of pharmacists

Professional orientation statements: The importance of.....	**Business orientation statements: The importance of.....**	**Studies**
Reading professional literature	Maintaining a business establishment	Quinney, Kronus, Chappell and Barnes
Being part of the public health team	Being a successful business man	Quinney, Kronus, Chappell and Barnes
Using and encouraging the use of official drugs	Arranging window and counter displays	Quinney, Kronus, Chappell and Barnes
Attending professional meetings	Being a good salesman	Quinney, Kronus, Chappell and Barnes
Compounding and dispensing prescriptions	Handling a variety of sundry goods	Quinney, Kronus, Chappell and Barnes
Number of pharmacy organisations membership		Chappell and Barnes
The number of journals to which subscribed		Chappell and Barnes
Attendance at pharmacy meetings		Chappell and Barnes
Pharmacists postgraduate qualification	Expressed attitude toward the pharmacist as a business man	Linn et al
The pharmacists' rankings of daily activities	The economic environment of the stores in which they are employed	Linn et al
Intrinsic value statements: The importance of	**Extrinsic value statements: The importance of .....**	**Studies**
Chance to be helpful to others or useful to society	The income of the job	Kronus, Harvey
Chance to work with people rather than things	The prestige of the career	Kronus, Harvey
Chance to be original and creative	Chance to exercise leadership	Kronus
Living and working in the world of scientific ideas	The hours and security of the job Freedom from supervision	Kronus, Harvey

There can be a number of reasons for these findings. It has already been discussed that professions claim service orientation and it is possible that the pharmacists expressed values to satisfy this expectation of professionals (See section 3.2.1). Certainly the statements used in the studies (Table 10) did not conceal the implications of the analysis for the occupation. This point is a methodological issue. Alternatively, it could be argued that service orientation versus business orientation are not at the opposite ends of the continuum. The findings that professional and business role orientations were not mutually exclusive in pharmacists was also confirmed by Holloway et al[269]. Their qualitative study revealed that some pharmacists saw being a good professional made good long term economic sense, in that client loyalty would be increased. Dingwall et al commenting on pharmacy's values explain that the "service orientation" need not be in tension with a desire to maximise income[249]. They go on to explain that similar business orientations, to that of pharmacy, exist in law and medicine. Kronus also explained that the service orientation has become commercialised and is a common advertising theme and thus its value as an analytical discriminator of occupations is reduced[266].

Quinney tried to relate role orientation to career satisfaction[264]. He found that the professionally orientated pharmacists were more likely to report role conflict than the business orientated pharmacists, but despite this they reported most satisfaction with their work. Ladinsky suggests that the reason for this is that such professionally orientated pharmacists are those who are sensitised by role conflict but their high professional values compensate for their perceived conflict and non-professional nature of their work[270].

3.3.3 Role orientation and practice behaviour

Despite the inconclusive typology of pharmacists in terms of their orientation towards business or professional roles, attempts have been made to investigate the effect of these orientations on practice behaviour. The studies hypothesised that business orientations were detrimental to patient care.

Quinney related the role orientations of pharmacists to prescription violations[263]. He found that pharmacists with a business orientation were more likely to be prescription violators than pharmacists with a professional orientation. From these findings he

argued that pharmacists vary in the degree to which they are affected by the controls of the occupation ,with the business orientated pharmacist least affected by occupational controls. Linn et al looked at the patterns of advice about health related problems given by pharmacists to patients, and the relationship of these patterns to orientations of the pharmacists. They hypothesised that business-orientated pharmacists, as compared to professionally-orientated pharmacists will be more likely to recommend over the counter medications to patients, rather than refer them to physicians. None of the criteria that they used to measure role orientations of the pharmacists could support this hypothesis[267] . Chappel and Barnes[268] found that a high professional role orientation may have beneficial effects for patients based on their measures of the pharmacists practice behaviours (knowledge of patients and knowledge of alcohol and alcohol-drug interactions), but they were not able to prove conclusively that high business orientations had a detrimental effect.

3.3.4 Organisational consequences of business ideals

The consequences of the presence of both professional and business influences in pharmacy have also been studied. The main consequence has been the growth of large multiple pharmacy chains. This has several implications on the traits that are considered important for occupations that claim to be professions. There is a loss of autonomy as the manpower of pharmacy moves from a traditional model of an independent practitioner to an employee who has to adhere to the employing company's regulations[257,264,265] . The employee-employer relationship between pharmacists that are created also has an effect on collegial relationships which is a characteristic of a professional culture[265] . The formation of collegial relationships is further prevented since pharmacies are in competition with each other which prevents a cohesive social organisation possessed by professions[271]. Harvey also points out the different training requirements of the occupational organisations and the business organisations. Pharmacists in the business setting describe the need for more business training, which is not favoured by the occupational organisations and consequently multiple pharmacy chains develop their own training. The different training requirements have implications for the future status of pharmacy, since the availability of both business and professional training will attract both business and professional

orientated students who will perpetuate the co-existence of both these ideals in pharmacy[257,265].

3.3.5 The new recruits

The implications of status ambiguities for pharmacy students has been investigated[262,272]. McCormack described that students cope with status ambiguities by criticism of big business and by expressing a desire to work in non-competitive locations. They increase their status by viewing pharmacy as part of the medical scientific group, which they consider to have the highest prestige out of a number of other occupational groups[262] . Shuval and Gilbert found that the status ambiguity was a persistent problem in the socialisation of pharmacy students from the beginning of their training to its end and was reflected in the consistent lowering of expectation of rewards, in particular intellectual interests from future practice[272] . Students coped with the role conflict by opting for careers in pharmacy which avoided the role conflict, for example by choosing a career as a pharmacist in industry, research or academia[272] .

3.3.6 De-skilling and loss of monopoly

A number of authors have highlighted the growth of pharmaceutical technology, in particular the mass production of pre-packed medicines, as a factor which affects the status of pharmacy[7,256,257,261,272-274] . These developments have meant the traditional compounding skills of the pharmacist have become redundant, leaving pharmacists only to count and label in the process of dispensing of medicines. The dispensing of medicines has consequently become a service that is not entirely monopolised by pharmacists. Pharmacists themselves delegate dispensing activities to less qualified personnel such as pharmacy assistants. In addition physicians have historically been able to dispense medicines in certain circumstances. Monopoly of services is seen as a qualifying trait of a profession and again pharmacy falls short by this criterion.

3.3.7 Subordinate position and the symbolic object of work

The relation of pharmacy and medicine has also added to the status ambiguity of pharmacy. Many articles have described the subordinate position of pharmacy and the inability of pharmacists to exercise judgements relating to appropriateness of medicines[7,256,257,261,272-274]. Thorner states that ethically pharmacists can only contact the physician if they feel something is wrong with the prescription and that they are not permitted to discuss the medication with the patient[261].

> *There is practically nothing he* [the pharmacist] *can do about a prescription if he is doubtful of it but get in touch with the doctor* [261].

The historical developments which shaped this division of labour has been described by Kronus[4] and in chapter 1. Most notable is the exclusion of the chemist and druggist of the Medical Act of 1887 in England.

The work of Denzin and Mettlin[256] is perhaps the most referenced in terms of the analysis of the occupational status of pharmacy[249]. Their work introduced concepts that went beyond the trait approach that has been described upto this point. They tried to analyse the meanings that pharmacists attached to the drug and the consequences of this. They claimed that the most significant factor for the status ambiguity of pharmacy was the fact that pharmacy had failed to exert control over what the authors describe as the symbolic social object of its work, the drug. The symbolic object of work is considered to be important since it is public and conveys shared emotions and meanings which may function for social cohesion and commitment. The authors explained that unlike other occupations such as medicine, which have developed an ideology to limit the way their members think of their social object (in the case of medicine, illness), pharmacy has not developed an ideology to limit the way its members view drugs. They argue that some of the members view the drug as an item of commerce to be advertised and sold whilst others see the drug as a treatment. The different views of the drug means that it is difficult to develop a single ideology in pharmacy. The consequences of this is that different messages are relayed to the public, and unlike other occupations pharmacy does not have a covenant and a mandate which defines the conduct of others towards them. Thus pharmacist are often viewed as an

agent through which drugs can be obtained and not a person who will perform a service.

This new concept, although innovative at its time has recently been criticised as a discriminatory factor separating occupations and professions[249]. Dingwall et al pose the question to what extent other occupations known as professions control the social object of their work. In the case of medicine they argue that medical services, may well be viewed as products to be sold. In addition medicine with its diverse internal segmentation, larger than that of pharmacy, may not have a coherent view of its social object.

The most significant flaw in Denzin's analysis, according to Dingwall and Wilson, lies in the description of the work around the social object. Dingwall and Wilson point out that this flaw is made by viewing the drug as a material object around which the work of dispensing is organised, rather than viewing the drug as a basis for social action. They suggest that this flaw stems from the lack of original work on the everyday activities of pharmacists. Their own ethnographic study of community pharmacists in the US showed that a significant dimension of the work of the pharmacist consisted of the use and control of information. They showed that pharmacists with their Patient Medication Records (PMRs) had knowledge about patients and their use of medication. This, they were able to interpret and use to give pro-active information. In this way pharmacists provided socially legitimate means for the patient to respond to questions such as "What is happening to me? What do the disordered sensations of my body mean?" Pharmacists also initiated provision of information on drug interactions to physicians. The use of information and the transformation work on the drug however was less secure here, with physicians less likely to accept the pharmacists suggestions. Dingwall and Wilson suggested that the social object of pharmacy, is not the material object, the drug. The social object of pharmacy is the process of preparation of the constituent chemicals into a drug which is socially accepted and used to treat ill health in society. The use and control of information on medicines exercised by pharmacists is central to this process[249].

Dingwall and Wilson also highlight a number of developments since Denzin's original article which have contributed to an increase in pharmacists' power. The most

significant development being the growth of negligence liability of pharmacists which enforces responsibility for drug action [249] .

3.3.8 Summary and conclusion

In summary the sociological studies suggest pharmacy's status ambiguity as an occupation stems mainly from the inclusion of business ideals in community pharmacy. This implies a lack of service orientation, although empirical evidence is contrary to this assumption, and creates role conflicts. The growth of multiple pharmacy chains with their business orientation add to status ambiguities. In addition the manpower base of pharmacy is changed qualitatively from an occupation of autonomous independent practitioners to an occupation of employee practitioners who have to comply with company regulations. Organisations representing the different interest groups within pharmacy are created which leads to a lack of cohesive organisation and a collegial culture. The presence of both business and professional elements attract students of both orientation into the occupation, thus perpetuating the status ambiguity. Once in the occupation, the status ambiguities, cause the students to be dissatisfied with their choice of occupation and they become disillusioned and less committed to the advancement of the occupation. The growth of pharmaceutical technology contributes to the de-skilling of the pharmacist and makes the dispensing process available to other occupations, thus leading to a loss of monopoly. The ethical code of pharmacy, itself, stifles the advancement of pharmacy in that it defines the role of the pharmacist precisely and discourages pharmacists to expand their responsibility beyond technique and accuracy of dispensing. Historical struggles between pharmacy and medicine have also left pharmacy in a subordinate position in the medical division of labour. Finally pharmacy lacks a central ideology which defines the relationship of its members to its social object of work, the drug. The above concepts contribute to the ambiguity of its occupational status.

The majority of the articles discussed above have taken the trait approach to their analysis of the occupation of pharmacy, in particular they have used the service orientation as a factor which differentiates pharmacy from other occupations known as professions. It was discussed earlier, however, that the trait approach to analysis of occupations is not satisfactory, and that service orientation is an ideology rather than

reality which occupations use to justify their privileges. Early sociologists of professions were criticised by being "duped" by these ideologies. This criticism could be levelled at the majority of the investigations described above which assume conflict between professional and business roles and which is reflected in their positivist approach to investigation. There are two main problems with this line of investigation. First, the measures used in these investigations (see Table 10) may provide an opportunity for pharmacists to fulfil their professional ideologies. Second as shown in other studies professional and business goals may not be in total conflict [13,15,16]. Denzin's analysis of pharmacy's lack of control over its social object, the drug, whilst still influenced by the trait approach tried to apply an interactionist perspective to analysis. Dingwall and Wilson, however, point out that this analysis was flawed since it neglected the social object as a basis of action, rather considered it as a material object. Dingwall and Wilson's interpretative approach to investigation showed that the social object of pharmacy, was the transformation of chemicals produced by the pharmaceutical industry into the socially accepted drugs for consumption. Pharmacists' control of information was central to this process. Commenting on pharmacy's occupational status, they, point out that to determine whether pharmacy is a profession is somewhat redundant, and that "it would be more profitable to investigate what type of an occupation pharmacy is. .... This could in turn teach us about other occupations neglected by sociologists" [249].

As was concluded in the previous section, there is no one definition of a profession and the exercise of determining if an occupation is or is not a profession is therefore redundant. Instead one could investigate the goals and strategies used by occupations to maintain their positions in their markets and the effects of these on every day practice of its members. Each occupation is unique and will be affected to different degrees and at different periods of time by social forces. Each occupation will consequently use different strategies. Thus the study of pharmacy, occupying a position both in the organisation of healthcare and commerce, has much to inform us in this period of time where increasingly other occupations will be placed in a similar position.

3.4 "New roles": Strategies for raising the occupational status

3.4.1 Sociology in occupational efforts

Dingwall and Wilson point out that one of the neglected areas of sociology is the part that sociology itself plays in the constitution of social problems - in their context professional status[249]. It is interesting to see the influence of sociology, especially the work of Denzin and Metlin[256], on the occupational efforts of pharmacy to increase its status. This next section first introduces the influential articles by pharmacy leaders which have encouraged the development of new roles. The ideology of the new roles was initially known as "drug use control" and has come more recently to be known as "Pharmaceutical Care". The new roles include the provision of drug information, individualising therapy for clients and monitoring of adverse drug problems. These are collectively known as "clinical pharmacy". Pharmacy leaders, introducing these concepts to members, overtly present the new developments as a response to challenges to professional status. After a brief introduction to the concepts, the rest of the section and the following sections then discuss the sociological studies carried out on these new roles. The investigators have come from both pharmacy and sociology backgrounds and their backgrounds will be made clear in the discussion of the studies.

Broadie, an eminent pharmacist, drew on the work of Denzin et al and proposed a strategy to develop a theoretical base for pharmacy practice which could be useful in directing the course of pharmacy's future[275]. One component of the theoretical base is a professional ideology or professional purpose to which all pharmacists could relate. He proposed that the concept of "Drug-use control" could be the mainstream ideology or purpose for pharmacy. [Recently RPSGB have been using the term medicine management[35]]

Hepler, a professor of pharmacy, also tackled the question of pharmacy's purpose[276,277]. He saw clinical pharmacy as a welcome recent development, which had mainly been defined in terms of informative functions with or without the inclusion of distributive

functions. He argued that professions exist to meet societal needs. Performing informative functions, such as drug information, alone is less valuable to society as it has less impact on health than accepting responsibility for the appropriate use of drugs in patients. He considered Broadie's concept of drug use control and expressed it in terms of responsibility for drug use. This he argued will define pharmacy's societal purpose, which will grant pharmacy a "covenant". He calls this concept pharmaceutical care, analogous with medical and nursing care[277]. In a later article Hepler and Strand set out the case for drug use control by citing articles which relate to drug induced adverse effects and the contribution of pharmacists in terms of patient care and financial savings in health care delivery[17]. The authors conclude that pharmacy's reprofessionalisation will be completed only when all pharmacists accept responsibility for safe and effective drug therapy which is of great need for society. It is thought that this can be achieved through the development of new training courses, which are longer in duration and are thought to attract more scientific students who are presumed to be professionally orientated[274]. It is hoped that these newly qualified pharmacists with their superior education could go into practice and assume some of the responsibilities that are suggested and thus raise the status of the whole occupation[249,274,280]. In addition clinical pharmacy creates a new and indeterminate body of knowledge and expertise which, unlike traditional compounding knowledge, is only accessible to pharmacists[278].

3.4.2 Sociology of occupational efforts

Whilst the articles described in the section above have used sociology to advocate and justify new roles for pharmacists, this section describes the sociological analysis on the proposed new roles [274,278,279].

Birenbaum, a sociologist, described the process occurring in pharmacy as reprofessionalisation, in which an old licensed occupation, such as pharmacy is trying to gain autonomy and recognition which it had lost due to the growth of pharmaceutical technology[274]. He saw the development of clinical pharmacy in terms of occupational efforts to gain status. Other authors, however, saw this process as a consequence of technological developments in the pharmaceutical field. These developments had not only automated compounding which had led to the de-skilling of the pharmacist, but had also led to a proliferation in the number and complexity of

drugs available. The technological developments had created a need for "a drug broker" and it is argued that a pharmacist is the most appropriate person to fulfil this role[269,278,279]. Holloway's empirical study also showed that the pharmacists did not see the loss of compounding and delegation of dispensing tasks as a threat, on the contrary they viewed this as an opportunity which would allow them to spend more time advising patients and detecting prescribing errors[269].

Birenbaum predicted that reprofessionalisation in pharmacy will take place by creating new roles, new job titles and new job descriptions for pharmacists. Birenbaum suggested two alternative futures for pharmacy. One in which the occupation will become inward looking and will develop a culture in which all pharmacists will display clinical concerns for patients, or secondly segmentation within pharmacy where clinical pharmacy will remain within the hospital environment only[274]. Holloway et al described both predicted situations in which pharmacists in general were becoming patient orientated and also suggested that hospital pharmacy and clinical pharmacy, have to a certain extent split from community pharmacy. The fact that both of the suggestions that Birenbaum made exist suggest that they are neither incompatible nor exclusive[269] .

These new developments are facilitated in the hospital and university settings where communications between pharmacists produces a sense of disgruntledness and consequently a sense of loyalty to a common goal of advancement of pharmacy. It is in these settings where the most avid supporters of clinical pharmacy are to be found. As Birenbaum describes *"Opportunities for interaction around these goals promotes the development of ideas that pharmacy can and should undergo reprofessionalisation"*. Hospital pharmacy is also thought to facilitate the developments since there is a role to administer the complexity of large numbers of drugs[280,281] and their costs[278,279]. Pharmacists in the hospital setting have also been shown to be more professionally orientated[266,268]. Hospitals also allow greater interaction between pharmacists and doctors during which new roles can be suggested and developed[278].

The studies described above considered the new roles, the ideology of pharmaceutical care, and the associated educational developments as processes in the professionalisation of pharmacy. However, There are conceptual difficulties with this

term as described in section 3.2. Holloway et al argue that Larkin's concept of occupational imperialism[282] best captures the complex process of achieving and maintaining status. Larkin argues that para-medical practitioners are caught up in a complex division of labour, since their specialist knowledges, are not marketable separately from one another. This means that boundaries of roles and responsibility are open to continual challenge and refinement. In order to advance their collective mobility occupations engage in what Larkin calls "occupational imperialism". They do so within a system in which the doctor is dominant and defines the medical division of labour. The para-medical occupations gain status by acquiring new roles within this system whilst delegating menial tasks. So the collective mobility does not aim to fundamentally change the division of labour, but to exemplify the organisational principles of division of labour. Larkin describes occupational closure and imperialism as involving tensions, conflicts and struggles between occupations, clients, competitors and the state, without changing the overall system of care. This model Holloway et al argue describes pharmacy's situation in which pharmacists are not threatened by technicians but look to delegate manipulative dispensing activities while at the same time are trying to influence prescribing decisions without taking full responsibility away from the medical profession.

3.4.3 Summary

The occupation's leaders overtly talk about the new roles for pharmacists as strategies to raise the status of pharmacy. These leaders quote many of the sociological studies on pharmacy reviewed in the previous section and use sociological concepts to plan the future of pharmacy. In particular the pharmacy leaders encourage the development of a new ideology for pharmacy, pharmaceutical Care.

These developments have been seen by sociologists in terms of raising the status of pharmacy. Some describe these strategies as professionalisation or reprofessionalisation whilst sociologists from other perspectives describe these developments as simultaneously aspects of struggles proceeding within pharmacy, aspects of struggles of pharmacy with other occupations, and possible outcomes of these struggles.

The next section reviews the effects and consequences of the new ideologies and the new roles on pharmacy.

3.5 Difficulties caused by new roles: boundary maintenance and role negotiation

3.5.1 Introduction

The pharmacy leaders who recommended a new ideology, and the sociologists who commented on the future of this new ideology, both recognise the potential for conflict with the occupation of medicine. Thus from pharmacy's perspective the development of the new roles is not without its problems. The area of practice in which pharmacy is claiming more responsibility also includes other occupations, such as nursing and especially that of medicine. The knowledge of drugs and medicines which pharmacy is claiming is also claimed by medicine. These processes of role expansion and encroachment over another occupation's role boundary creates tension and conflict between the members of the occupations. As Freidson explained "pharmacy provides services related to healing which if not regulated could become competitive with the practice of doctors. Doctors, however, can see the usefulness and necessity of these services and if their pre-eminence is to be maintained, the clinical activities of pharmacists must be circumscribed"[8]. This is not an easy task, since as Eaton et al explain that in both hospital and community pharmacy the work of the pharmacist, although ordered at the request of the doctor, is not supervised. In addition in the community setting the pharmacist has access to the patient population who may consult the pharmacist without reference to the physician [7]. (see chapter 1 and the recent government white papers which recommend a pharmacist as a first port of call for health care advice).

The articles summarised below describe the occupational strategies used by pharmacy and medicine to maintain and negotiate their role boundaries.

3.5.2 Boundary maintenance

This tension between the two occupations has consequences for their members and the interactions that occurs between them[7,8]. Many articles have looked at the ways in which on the one hand doctors attempt to maintain their relatively dominant positions and on the other hand the ways that pharmacists attempt to extend their roles.

This potential conflict between the occupations has led to a number of studies both by sociologists[283] and by pharmacists[280], investigating the relative support for the new proposed roles. As the approaches emphasising conflict and power might predict, doctors and nurses have been found to be generally against pharmacists' clinical roles, especially those roles proposed for community pharmacists, whilst academic pharmacists are the most avid supporters followed by practising pharmacists themselves[280,283]. Physicians were not in favour of those tasks that required pharmacists to make independent technical therapy decisions but favoured traditional clerical and manipulative tasks of the pharmacist. Patient management tasks were only favoured as an adjunct to their own role[280] (also see section 2.6). Ritchey found that physicians of a more senior age and those who wrote more prescriptions were less favourable to the pharmacist's clinical roles, explaining that physicians feel that they are the technical experts and their extensive experience in prescribing preserves their skill so that they infrequently need the pharmacists' clinical services. By insisting that only physicians have exclusive rights to technical decision making, the boundary between pharmacy and medicine is maintained.

Another process of maintaining boundaries is the process of delegation in which the physicians steer pharmacists away from the most threatening aspects of an expanded role and toward more subordinate but clearly defined areas of expertise. For example there was support for pharmacists teaching pharmacology and maintaining drug profiles[280] and making minor adjustments to drug therapy. Thus medicine succeeds in boundary maintenance.

Eaton et al highlighted the speedy development and acceptance of the medical speciality of clinical pharmacology as a method of curbing the role expansion of clinical pharmacy[7]. Clinical pharmacologists argue that rational drug usage and drug

prescribing can not be separated from other aspects of patient management, which is the overall responsibility of a member of a medical occupation. Therefore neither pharmacists nor nurses are qualified to initiate or regulate drug therapy. According to the clinical pharmacologists in Eaton's study, the role for pharmacists is to be part of the clinical pharmacologist's team. Once in the team, non threatening tasks such as patient counselling, monitoring of side effects and the provision of drug information are delegated on the basis that the physicians do not have the time to carry out these services and that these services are harmless and not life threatening. Thus the role boundaries are maintained. Eaton et al argue that the speciality of clinical pharmacology would have taken much longer to develop had clinical pharmacy not developed at the same time. Equally clinical pharmacy would have seemed more threatening had clinical pharmacology not been developed and the activities of clinical pharmacists would not have been viewed in terms of delegation. They argue that by incorporating the knowledge and skills claimed by pharmacists into the medical speciality, followed by a process of delegation, the medical profession has conceded some status to pharmacists whilst maintaining its overall position[7].

The studies described above emphasised power relations and with the exception of Eaton et al, hypothesised that pharmacists would support the suggested new roles and that physicians and nurses would be less supportive of the development of new roles for pharmacists. Their results provided information on the overall occupational attitudes towards the new roles, but were not able to show how this expressed itself in every day interactions. The studies described below drew on the interactionist tradition in two ways. First, the approach to investigation adopted a qualitative methodology. Second, the subject of investigation was the everyday activities and interactions of pharmacists and physicians. These studies used in depth interviews and participant observations. Once again the authors were from a variety of backgrounds including pharmacy and sociology.

As well as physicians attempting to maintain boundaries, pharmacists were also found to be keen in delineating their role boundaries and did so by viewing their responsibility as being to make the doctor aware of drug related problems[7,279,284]. Mesler showed that suspected problems requiring clinical tests which implied a mistake in diagnosis proved problematic for pharmacists and some saw this as beyond their

responsibility[284]. Weiss also suggested that if pharmacists wanted to claim expertise in usage of medicines, they should want to prescribe. However, she found that none of the pharmacists were willing to take on the responsibility of prescribing[279]. The investigations of the day to day interactions of pharmacists seem to show that both pharmacists and physicians use the technical-decision making of diagnosis to delineate their role boundaries. Such findings leads Eaton et al to suggest that the reason why pharmacists do not wish to prescribe is because they are concerned about encroachment on their own role of dispensing. Pharmacists uphold the monopoly of physicians in diagnosis and treatment decisions in exchange for maintaining their monopoly over dispensing. Eaton et al describe this as a negotiated settlement between pharmacy and medicine[7].

3.5.3 Negotiating new roles

The concept of a "settlement" between pharmacy and medicine implies an end to the negotiations. The qualitative studies which investigated the day to day activities of pharmacists, however, were able to uncover strategies which pharmacists used to gain the support of physicians and nurses for their new roles[279,284,285]. Many of the studies investigating pharmacists day to day interactions observe that pharmacists are generally aware of the potential conflict that their new roles could bring. A common strategy to defuse the conflict is to use tact and diplomacy[284,285]. Thus interaction occurs in a way that does not make the doctor look incompetent and leaves the final decision to the doctor[7,278,279,284,285]. When problems arise with medication pharmacists prefer to sort out problems by contacting the doctor face to face, rather than writing in the patient notes. They try to build relationships with the doctors so that their interventions are not seen as confrontational. This is achieved by explaining the problem in a way that emphasises the common goal of both pharmacists and doctors in caring for patients and not making mistakes. In other cases the pharmacists present the problem in a way that the doctors think that they are teaching the pharmacists by clarifying the reasons for their decisions[7,278,279,284,285].

Other strategies of negotiation of new roles were uncovered by Mesler whilst investigating the socialisation of pharmacy students[285]. Mesler described the strategy of "role taking" in which pharmacists were aware of the different expectations that

individual doctors had of them. Pharmacists would deliberately choose the doctor they spoke to according to how responsive they thought the doctor would be to their suggestions. Another strategy that Mesler reported was that of "tactical socialisation" of nurses and doctors. The senior pharmacists would place clinical pharmacists into positions that fulfilled the needs of the hospital in the hope that the contribution of a clinical pharmacist could be recognised and the position would be made permanent. In the hospitals that he investigated he found that this was the case in specialised clinics (such as pain clinics) where there was support from nurses, doctors and managers for clinical pharmacy input. He explained that as student doctors and nurses experienced these clinics they would become socialised to a level of therapy which can only be provided with the assistance of clinical pharmacy. In addition the pharmacy students would be socialised to expect to be more involved in patient care, which they would take with them in their careers. Thus, contrary to Eaton's concept of a negotiated settlement, Mesler showed that clinical pharmacy was in a constant process of development. Through negotiation some new roles became established and institutionalised, which enabled socialisation of pharmacy students and other health occupations into accepting clinical pharmacy which in turn provided other opportunities for negotiations of further roles.

This section has shown the importance of studies of a qualitative nature of the day to day activities of pharmacists, which have uncovered hidden processes of role negotiation and boundary maintenance.

3.6 Distinctiveness of The community pharmacy setting in the UK

The majority of the articles described above have mainly studied hospital pharmacy in America. Although there are similarities between the delivery of health care in the two countries, and there is no doubt that British pharmacy has been influenced by developments in America[16], there are important differences. Hospital and community pharmacists also work in different environments which may affect development of their roles. The section below discusses these differences.

One area which has been neglected generally by the sociological studies is the present role of the state in the development of pharmacy, although the historical involvement of the state has been noted by a number of historians[2,4,5]. One could argue that the role of the state in the development of British pharmacy is of greater significance than the role of the state in the development of American pharmacy, the main difference being the existence of the NHS in Britain and its relation with pharmacy[278]. In Britain the role of the state is not only important in providing license to practice but it is also important since it funds and controls the NHS [269,278]. The structure of the NHS in turn shapes the division of labour. This is particularly the case for community pharmacists who as opposed to hospital pharmacists have a contract for provision of pharmaceutical services with the health authority. Pharmacists found in breach of these terms of service are reprimanded. The contracts define pharmaceutical services as [33]

"The supply of proper and sufficient drugs and medicines and listed appliances which are ordered by a registered practitioner in pursuance of his function in the health service."

The implication of this is that community pharmacists, unlike their hospital colleagues, may find it harder to develop new roles. However, the NHS also provides opportunities for the expansion of roles[269,278]. An example of this is the recent cost containment of the drugs budget and the state recommendations for pharmacists involvement in this exercise. The role of the state is also important due to its market principles of ensuring competition and its suspicion of professional monopolies (For a detailed discussion see section 1.6 and government recommendations for involvement of pharmacists in prescribing support and the recent investigation into the Resale Price Maintenance on OTC medicines).

The movement for the new roles in American pharmacy seems to have the support of pharmacists in academia[257,274,283]. The consequence of this is that students are socialised into expecting the new roles and may work towards changing the way pharmacy is practised[285,286] . Studies have shown that pharmacy academics in other countries are not so favourable towards clinical pharmacy. Shuval et al showed that academics in Israel gained status by orientating themselves and their students towards the more scientific disciplines and roles of the pharmacists e.g. those found in academia and in industry[272]. Eaton also found that there was not unanimous support for clinical pharmacy in the

British schools of pharmacy[7]. Consequently graduate pharmacists in these countries who practice in community or hospital pharmacy may be disillusioned with their career and not be as committed to changing practice. In America, the impetus for change seems to have come from the universities, whereas the change in Britain seems to have come from the council of RPSGB[269,274]. The consequence is that any change that may be achieved will be slower in Britain, since the occupational policies will take longer to filter to students and pharmacy graduates.

The context of community pharmacy is very different to that of hospital pharmacy. Community pharmacists work in premises away from the medical surgeries, they potentially have more access to the general public, and the recent moves to increase the access of the public to medicines means that there will be more visits to the pharmacy (see section 1.6). The extended roles that have been proposed for the community pharmacists are not limited to clinical pharmacy which aims to provide informative services to healthcare professionals . These include health promotion, diagnostic testing and provision of advice and treatment for minor ailments, all of which are an alternative to the service provided in the medical surgeries and suggest a role in diagnosis for the pharmacist[13,16]. The implications of these and other features mean that British pharmacists and physicians could potentially be in more conflict than their counter parts in the American hospitals.

As opposed to the hospital setting where strategies to raise status are aimed chiefly at the medical profession, in the community setting strategies to raise status are also aimed at the general public[287]. This situation is more complex than the hospital context. There are a small number of studies which have started to examine the distinctive position of community pharmacy in the UK. Britten uses the example of the recent development of patient medication records (PMR) in pharmacies to illustrate this point. She concludes that the potential for the failure of the PMRs and other extended roles may not come from hostile doctors but from customers unaware of the potential benefits of the pharmacist's extended role for themselves.

As highlighted above the development of clinical pharmacy was facilitated in the hospital setting because of the opportunities that were presented as a result of the close working proximity of pharmacists and other occupations and the relatively fluid

structure of the hospital system which allowed senior pharmacists to strategically develop new roles. The interactions of pharmacists and other occupational members then led to delegation of certain tasks to hospital pharmacists who would gain status as a result of this process. Eaton et al argue that these tasks are already being carried out by community pharmacists, but they have been developed independently of other occupations and not delegated. Community pharmacists, however, are not in the formal division of labour, so these tasks do not carry the same status as the same tasks performed in the hospital setting[7].

The studies investigating the development of clinical pharmacy in the hospital setting showed that roles were negotiated due to close working proximity and the increased interactions that occurred between pharmacists and physicians. However, Harding et al's study of health centre pharmacies in the community found that despite the close working proximity and increased contacts of community pharmacists and GPs, new roles had not developed to any extent[222]. Although there seemed to be a better working relationships which were described as satisfactory, the pharmacists expressed frustration that their contribution to prescribing was not realised, whilst GPs expressed concern over pharmacists dispensing medical knowledge[222]. This finding again points to the distinctive nature of the community pharmacy setting in the UK.

As well as promotion of knowledge base there may be commercial strategies to raise status. Holloway noted that some pharmacists raised their status by stocking more expensive items to attract a more upmarket clientele[269] . In addition community pharmacy, more than hospital pharmacy, is affected by the consumerist movement. It seems that investigations on strategies to raise status of the pharmacist with the public are lacking in the sociological literature.

The distinctions made in this section highlight the importance of the context of the study. Therefore one needs to be careful in generalising the findings of the studies described in this chapter to the UK community pharmacy setting.

3.7 Summary and Discussion

This chapter has shown the different analysis of occupations known as professions. The different approaches to the analyses reflect the developments within the sociology of occupations at the time. These developments progressed from analysing traits of occupations, to investigating every day interactions to considerations of the wider analysis of society. An understanding of these analysis is important in reviewing the sociological literature on pharmacy.

The sociological articles on pharmacy have in the main concentrated on the occupation's status explaining that either pharmacy has not professionalised or that it has lost its professional status. These articles highlight a number of issues in their analysis.

Interestingly pharmacy leaders have used the sociological concepts to develop new roles and ideologies to increase pharmacy's status. These new roles and ideologies have in turn provided further data for sociological examination which point out that the new roles can potentially be difficult for pharmacists' every day activities.

The studies described in this review have taken a number of approaches to their investigation. The interactionists approaches showed the day to day interactions of pharmacists and their working environment, while Kronus showed the importance of historical developments in shaping the present situation of pharmacy. Mesler, however, showed the value of combining these two approaches in his study of negotiations. It seems important to consider historical developments, the influence of the state and the day to day interactions of pharmacists with other health care workers and their clients in any analysis of the occupation of pharmacy.

The sociological studies on the occupation of pharmacy have had several influences on this project. Firstly, they conveyed the importance of recognising the occupational context of the recommendations for the new roles of the pharmacists. This is a context that influenced the initial proposal for this project. Subsequently the sociological studies encouraged this researcher to become detached, to a certain extent, from the occupational strategies of extending the role of the pharmacist. The sociological studies which had in the main concentrated on the question of whether pharmacy is a

profession or not, were found to be redundant since there are many definitions of a profession. Therefore this project makes no attempt to comment on this. Instead the project concentrates on the every day activities of pharmacists and how they justify and define their own roles. The sociological articles however do point out a number of factors which are considered in this project and which help to provide explanations for some of the findings. In particular the concept of the division of labour and the market for the provision of health care.

CHAPTER 4 THE APPROACH TO THE INVESTIGATION

4.1 Introduction

The aim of the project was to investigate the factors affecting the extended roles of the community pharmacist. The influences on the research question are worthy of discussion here since the research process was fluid in nature and its emphasis changed during the course of the studentship. The initial proposal submitted to the funding body intended to test a number of hypothesis that the researcher previously thought were the most important factors in enabling pharmacists to extend their roles. In particular the hypothesis that the presence of two pharmacists in a pharmacy would allow the extension of the role of the pharmacist (see Appendix 2). The previous chapters and the methodological articles presented in this chapter have influenced the research process. The researcher has recognised possible biases in the published literature (see chapter 2) and personal biases concerning the role of the pharmacist. Consequently the initial stages of the investigation took on an exploratory approach and the researcher tried to detach himself from the occupation's goals and strategies. The research project then tried to investigate the findings from the exploratory stage in a national survey of community pharmacists.

The aim of this chapter is to present the theoretical influences on the choice of methodology used in this project and subsequently to present the approach and the techniques adopted in this investigation. The chapter is thus separated into sections describing the interviews with the pharmacists, the questionnaire development and the final survey.

It is very appropriate to devote a chapter to these topics since a major criticism of previous research in pharmacy has been the lack of quality in the methods used and a lack of discussion of methodology[46-50]. In addition in the growing discipline of Health Services Research (HSR) the debate on methodology is ever present[288-291].

4.2 Qualitative and Quantitative approaches

In very broad terms HSR is concerned with the organisation of delivery of care, how patients respond to services and the efficiency of services that are provided. HSR centres in the main have grown out of departments of public health and epidemiology. HSR has therefore inherited the methodological emphasis and techniques traditionally used in those disciplines. These methods can be broadly summarised as quantitative methods.

HSR centres are, however, multi-disciplinary, incorporating social scientists who have traditionally been involved with research into organisations, people and society as a whole, although not specifically focusing on health. Social scientists, however, use a variety of methods for their research purposes, including both quantitative and qualitative methods. It is the integration of social sciences with epidemiology and public health that has highlighted methodological debate about the use of qualitative and quantitative research methods in health related research[288-291].

The debate, as it related to this investigation, was initially introduced in terms of the techniques or the methods that are used rather than the underlying philosophical principles. The methods used in pharmacy practice research, prior to the start of this project, were quantitative and in the main involved the use of questionnaire surveys[47]. There are a number of benefits to carrying out such surveys including that the views of a large number of pharmacists can be sought at a relatively low cost in comparison to other methods such as interviewing and work sampling. As long as the sample is representative of the population of community pharmacists, one could extrapolate the results to this larger population. Through the questionnaire design, one could examine pharmacists' views or actions and through the statistical analysis, the study hypotheses could then be tested and their principles accepted or rejected[292,293].

The use of a questionnaire, however, can be criticised on the grounds of the design of the questions which are mainly based on pre-existing literature and factors which investigators consider important to include. Often the design of questionnaires force respondents to give answers in the categories provided for them, thus limiting responses[292-295]. In addition due to the official nature of the design of many questionnaires, respondents may feel obliged to give socially acceptable answers. One of the most important criticism of the quantitative approach is the lack of attention to social context, that may influence the findings.

One of the qualitative methods that could be used in this investigation was face to face interviews. A handful of studies using such interviews had also recently been published in PPR journals[76,157,210]. The qualitative approach is also advocated for phenomena not researched in depth[296], a description attached to pharmacy practice[47] (see section 2.7).

This technique would also address some of the criticisms of the quantitative survey approach. Such interviews would allow the respondents to talk freely and to bring up issues that they consider important[297]. They would be allowed to respond to questions as they consider appropriate and if the researcher was able to form a good rapport with the respondents, the likelihood of only obtaining socially acceptable answers would be reduced[298]. Perhaps the most important difference between the two methods is that qualitative methods try to take into account the context of real life situations.

The target audience of this project, pharmacists and policy makers, however, may not appreciate the benefits of qualitative methods[50] . As opposed to traditional research, qualitative methods often use small sample sizes which are not subject to statistical analysis and their reports are often long. In addition the analysis used in qualitative methodologies are not generally accepted and are thus considered subjective[288-291,299].

It was decided to adopt both approaches in this investigation. Qualitative methods were employed initially so that pharmacy practice could be examined in more depth. The findings of this stage could then be used to inform the design of the quantitative survey. This is an accepted procedure in social science research[297] and represents an

advancement on previous pharmacy practice research[46-49]. The quantitative stage would then produce data which may be more acceptable to the target audience.

So far this discussion has concentrated on the pragmatic reasons behind the selection of research methods. However, the selection of methods was also informed by a consideration of research methodology.

4.3 Philosophy of Research

The reasons for adopting the methods used in this investigation and the examination of the qualitative-quantitative debate have been influenced by consideration of research methodology.

The research methods, developed mainly within the disciplines of sociology and anthropology which have influenced the debate on methodology in Health Services Research were borne out of a period of dissatisfaction with the output of traditional social science research[300]. These investigations used methods which modelled themselves on the natural science disciplines and tried to develop a set of methods to measure phenomena, statistical tests to analyse findings and to derive explanations[293,300]. This traditional approach is known as positivism. The main criticism of the traditional approach was the assumption made by researchers that the social world can be treated in the same way as the natural world[294,295,301]. The main philosophical school of thought that rejected these assumptions is known as phenomenology[302] .

Phenomenologists, indebted to the work of Schutz, argue that the "facticity" of a physical object or force such as rain or gravity is different to the facticity of a social phenomenon such as divorce, crime or polite behaviour[293,303,304]. The social world unlike the natural world is meaningful. The natural world on the other hand has no inherent meaning and so scientists can give meaning and explanation to the phenomena that they are investigating. Phenomenologists, whatever their specific philosophical standpoint, argue that when the scientific paradigm is applied to the social world, the meanings and interpretations that are made by the members of the social world are

glossed over. It is exactly this that positivism has taken for granted, which is the enquiry of phenomenology, importantly taking into account social context[293,303,304]. This implies that individuals do not discover knowledge rather they create or construct it[305]. Similarly human behaviour towards a certain situation is not based on predetermined responses, but based on the meanings that the situation holds for them, these meanings in turn are defined and negotiated through interactions[294,295,302].

The scope of this chapter only allows for a very brief presentation of research methodology. However, the two philosophical arguments that were most influential to the approach adopted here were the differences between social phenomena and natural objects and the importance of social context. As well as using the qualitative interviews to inform the design of the quantitative survey, the qualitative component was used to uncover and gain a better understanding of the taken for granted factors affecting the pharmacists roles and the influence of different social contexts on pharmacists' attitudes and behaviour. The interviews were also used to investigate how pharmacists justified their attitudes and actions.

The importance of taken for granted issues and social context were very apparent in the data generated by the qualitative interviews. On several occasions, when asked questions about their extended roles, pharmacists rephrased the question and placed themselves in the context of their everyday practice. On other occasions when a question was asked the pharmacists would qualify their answers by the phrase "it depends". It became more and more apparent that these "it depends factors" were very important to the investigation, since they influenced the answers that the pharmacists gave. The interviews also revealed several working practices and attitudes that seem to have been glossed over or taken for granted in the proposals for the extended roles of pharmacists (see chapter 5).

4.4 Qualitative interviews

There are several important points to be reported in the discussion of the methods used in the qualitative stage of this project. Initially there were a number of anxieties in adopting this method. These included:

- the recruitment of pharmacists for the interviews (sampling procedures);
- the way that the interviews should be conducted (the issue of rapport and how to guide interviews);
- the fear of leading respondents into talking about topics that only the researcher was interested in (limiting the responses);
- that the respondents may give answers that the researcher wanted to hear and (socially acceptable answers - public accounts);
- analysis of the data that was generated (choice and adoption of the numerous techniques).

It was decided to conduct pilot interviews to tackle some of these concerns before the main data collection took place. A topic guide was prepared (see Appendix 3) and arrangements were made to conduct interviews with three pharmacists known to the researcher. These interviews lasted for more than two hours and were conducted out of the pharmacists' working hours either in the pharmacy or at the pharmacist's house. The topic guides were useful in that they reminded the researcher of the topics that were to be covered. The order of the topics that were discussed differed from that in the topic guide. The interviews themselves took the form of informal discussions rather than a structured question and answer session. As far as possible the researcher only introduced topics, and encouraged the respondents to express their views, in a non-directive manner. These interviews were recorded and transcribed. Interesting views or points made by each respondent were presented to subsequent respondents and elaboration and explanation of these points were elicited.

These pilot interviews provided invaluable experience which was utilised in the planning and running of subsequent interviews. How this information is used is discussed in the relevant sections below.

4.4.1 Recruitment of Pharmacists for the interviews.

Although the pilot interviews produced very rich data, it was important to the research to also sample pharmacists who were not known to the researcher and those who practised in a variety of settings.

Approval of the qualitative component of the research was sought from the local pharmaceutical committees of two health authorities and one large pharmaceutical company. The seeking of approval consisted of a short presentation of the reasons behind the project and the methods that were to be employed. This negotiation led to the provision of lists of pharmacists in the two health authorities and a list of pharmacists who were considered appropriate for the project by the large pharmaceutical company. These lists were combined and every other pharmacist on this list was selected and asked to participate in the investigation by letter (see Appendix 4). This sampling technique was adopted since the researcher had practised extensively in the two health authorities as a locum pharmacist. The sampling technique ensured the expansion of the sample to pharmacists not known to the researcher and to pharmacists working in other settings[306]. This was important given that the researcher did not know at the outset whether the responses provided by an acquaintance would be systematically different from those of a stranger.

Taking part in the interviews also qualified the pharmacists for one hour of continuing education, which provided an added incentive for the pharmacists to participate. Those who agreed were contacted by telephone and arrangements were made for the interviews to take place. Interviews were arranged outside working hours, either in the pharmacy where the pharmacists worked or at the pharmacist's house. Agreement for the interview to be tape recorded was also sought at this stage.

In total 23 pharmacists were interviewed. Their characteristics are presented in Table 11 below. The table shows that a variety of ages, gender, employment status and practice locations were represented in the sample of pharmacists interviewed. The only practice location that was not represented was a health centre pharmacy and this is perhaps one of the limitation of this part of the investigation[306].

Table 11 Characteristics of pharmacists interviewed

Pharmacists	Pharmacists' characteristics				
	Gender	Age	Employment status	Practice location	Health Authority
Pharm: 1	Male	late 20s	Employee, independent	High Street	1
Pharm: 2	Male	early 50s	Proprietor, independent	High Street	1
Pharm: 3	Female	early 30s	Employee, independent	Rural	1
Pharm: 4	Male	early 30s	Employee, multiple	High Street	2
Pharm: 5	Male	mid 20s	Proprietor, independent	High Street	2
Pharm: 6	Male	late 50s	Proprietor, independent	Rural	2
Pharm: 7	Male	late 50s	Proprietor, independent	Rural	2
Pharm: 8	Female	early 40s	Proprietor, independent	Suburban	2
Pharm: 9	Male	mid 40s	Proprietor, independent	Inner-city	2
Pharm: 10	Male	mid 40s	Proprietor, independent	Inner-city	2

Table 11 continued

Pharmacists	Pharmacists' characteristics				
	Gender	Age	Employment status	Practice location	Health Authority
Pharm: 11	Male	mid 40s	Proprietor, independent	High Street	2
Pharm: 12	Male	mid 50s	Proprietor, independent	Suburban	2
Pharm: 13	Female	mid 50s	Proprietor, independent	Suburban	2
Pharm: 14	Female	mid 30s	Employee, independent	Suburban	1
Pharm: 15	Male	early 40s	Proprietor, independent	High Street	1
Pharm: 16	Female	early 30s	Employee, multiple	High Street	3
Pharm: 17	Female	late 20s	Employee, multiple	High Street	4
Pharm: 18	Male	late 30s	Employee, multiple	High Street	5
Pharm: 19	Male	early 40s	Employee, multiple	High Street	2
Pharm: 20	Male	mid 30s	Employee, multiple	High Street	6
Pharm: 21	Female	early 40s	Proprietor, independent	Inner-city	2
Pharm: 22	Male	early 50s	Consultant	-	-
Pharm: 23	Male	early 40s	Proprietor, independent	Suburban	2

4.4.2 Conducting the interviews

Emphasis was placed on forming a relationship with the pharmacists who were to be interviewed[298,307,308]. This differed from the pilot interviews since the pharmacists in the pilot interviews were already known to the researcher. The interviews were mostly conducted at the end of the day and occasionally during the lunch break. A snack was therefore provided to place the pharmacists at ease and to make a good impression. To enhance rapport, the initial topics of discussion were related to topics that the researcher and the pharmacists had in common such as their backgrounds, their place of work and their careers.

Information in line with the ethical guidelines for the research were also provided for the pharmacists[309] . This outlined the purpose of the research and gave assurances of confidentiality (see Appendix 4). The pharmacists were also given the option of receiving a transcript of their interviews.

The interviews were allowed to flow freely and as such can be described as un-structured[307,310]. The topic guides were used as an aide-memoir. The initial interviews tended to be very long and many topics were discussed. As more interviews were conducted, however, the topic guide became more focused. In particular there were more discussions on the every day work of the pharmacists and how the extended roles would fit into the every day situations. In addition, interesting themes, views and quotes that emerged from the analysis of previous interviews were presented (anonymously) to other pharmacists in subsequent interviews and elaboration and explanation of these points were elicited. Hence data collection and analysis proceeded in a cyclical manner[296].

4.4.3 Analysis of the interviews

The interviews lasted for a minimum of one hour and were tape recorded. The recordings were transcribed into text. The initial analysis took the form of reading the transcripts and developing a coding system which divided the text into discrete units referring to particular issues. After the initial coding procedures formal analysis was aided by the use of the computer package NUDIST. This package allowed the merging and linking of certain codes. These were then used to produce a descriptive account of the themes that emerged from the interviews.

From these descriptive accounts it was possible to highlight those issues most relevant to pharmacy practice, in particular the implications of every day practice on the extended roles. The aim of the qualitative interviews was to help the design of the questionnaire, in particular to uncover and incorporate the "it depends" factors. Thus the level of analysis reflected this use. Chapter five presents a more detailed account of the analysis and findings of the qualitative stage of this project. The findings are

presented with their relevance to the extended roles of the pharmacists and their incorporation into the survey.

4.5 Combining Methods

In terms of this investigation, the ideal methods would gather a large body of information about pharmacists that is systematic whilst reflecting the diversity and complexity of their natural settings. Therefore a combination of qualitative and quantitative techniques were developed. This pragmatic approach is becoming increasingly common in HSR, in line with the support for selection of methods as appropriate to the research question, rather than dichotomising qualitative and quantitative methods[311].

The use of vignettes, role play and case histories have been suggested as methods of combining the characteristics of qualitative and quantitative methods[312-318]. Of these suggested methods, the most adaptable to a survey is the use of vignettes[312,313,318].

Vignettes are a series of scenarios that define social context. They resemble clinical case histories, however, in contrast to case histories in which clinical symptoms are defined and varied, vignettes define and vary social context and thus are most frequently used to elicit values and criteria underlying decision making[312,313,318] . Researchers have reported several advantages of vignettes over traditional techniques used in surveys. Finch points out the advantages of vignettes over attitude scales. She criticises attitude scales as crude attempts at eliciting beliefs in a non contextulised way. Vignettes on the other hand move away from a direct and abstract approach and allow features of the context to be specified[312,313]. Vignettes have also been used to define specifically the question that the researchers want to ask. Martin et al in their survey of work and occupation found that work had different meanings across their sample. They used vignettes to define what they meant as work and also to obtain respondents understanding of key wording and concepts[317]. Mckeganey et al varied several factors within their vignettes to see the relative effects of those factors on respondents' reported behaviour[318]. There are very important considerations in using the vignette technique. Researchers must be careful not to extrapolate the response given to the vignettes to

real life situations. In real life a variety of factors are taken into account which can not be represented in vignettes. In addition vignettes may be interpreted in a non-personal way. Lastly vignettes can not capture the interaction and feedback that occurs in everyday situations[319]. Interestingly a number of PPR studies have used similar techniques to vignettes, however, these have been used to define clinical cases rather than social context[68,320,321].

In this investigation the design of the questionnaire tried to incorporate the importance of social context and to measure its influence on pharmacists' reported behaviours. As far as was possible most questions were written in such a way that they made reference to the everyday practice of the pharmacists. The influences of the "it depends" factors were investigated in the questionnaire by employing vignettes.

The approach that was adopted in this investigation was one of qualitative interviews whose findings were incorporated into the design of the questionnaire. A brief discussion of the development of the questionnaire is presented below.

4.6 Questionnaire Development

As far as was possible the design of the questionnaire tried to:

- incorporate the main themes identified in the interviews;
- define the question more specifically rather than asking a vague question;
- and take account of the concept of context.

To investigate the influence of the factors determined as important from the qualitative interviews a number of vignettes were constructed. Vignettes as defined in this report are a series of questions which place the pharmacists within different social contexts by presenting them different scenarios. Once the context has been set, the pharmacists are asked their views on a particular topic. This approach allowed the investigation of influences such as workload and the relationship of the pharmacist with the local GPs. For example, the interviews revealed the importance of relationships with local doctors and the nature of the drug interaction on the prescription in determining if pharmacists would intervene on certain prescriptions (see question 12 in Appendix 5). The vignette

that was constructed consisted of 4 scenarios that varied the relationship with the local doctor; the last scenario also incorporated the influence of the person's expectations:

- Scenario 1. It is a quiet period, there is no paper work to be done and you get on very well with the local doctor who has written the prescription.
- Scenario 2. It is a quiet period, but this time the prescription is written by a doctor who you do not know.
- Scenario 3. It is a quiet period, but this time the prescription is written by the senior partner of the local practice, whom you have had several disagreements with.
- Scenario 4. It is a quiet period, the prescription is issued by the local practice but now the person who has brought in the prescription seems to be in a rush to go.

The vignette also consisted of five different types of prescriptions that may require the pharmacists to intervene:

A repeat prescription without a signature
A non-addict prescription for a controlled drug without a signature
A repeat prescription which produces a minor drug interaction on the computer
A new prescription which produces a major drug interaction on the computer
A prescription for an outmoded drug therapy to which there is a better alternative

For each variation in the scenario the pharmacists were asked if they were willing to intervene and contact the local doctor who had issued the prescription.

Two other similar vignettes were constructed. These concerned the provision of pro-active advice under differing workloads and client interactions and the willingness of pharmacists to substitute antibiotics in an emergency situation.

To ascertain the views and beliefs of the pharmacists it was decided to construct a number of attitude scales. These consisted of statements which were taken directly from the transcripts of the interviews (See questions 9, 13,14, 19 and 22 in Appendix 5). The statements were chosen according to the main analytical themes of the qualitative data, however, reference was made in each case to every day practice of the respondents. For example, in determining the attitudes of the pharmacists towards setting up and carrying out extended services, a short sentence placed the pharmacists into their own individual context and then presented a series of statements which they had to rate accordingly:

Question 9. If you wanted to set up and carry out extended services, how important to you would be the following?

If I had additional training.
If the extended services became part of my terms of service with the health authority.
If I had more public demand and they were willing to pay for the services.
If there was a more appropriate remuneration system.
If technicians in my pharmacy were allowed to do the dispensing without supervision.

Questions about the proposed roles were defined in terms of the tasks that would be required of the pharmacists within their every day practice. For example, in asking the pharmacists about the proposed role of monitoring chronic conditions rather than simply asking if they agreed with such a role, the wording chosen was:

Question 10. For people on repeat prescriptions collect and evaluate clinical parameters to determine the efficacy of the drug therapy eg record and collect blood pressure and peak flow readings.

The questionnaire also collected a number of pharmacist socio-demograhic variables such as age, gender, practice location etc. In addition the questionnaire asked the pharmacists to estimate their workload in terms of provision of advice and number of sales, interventions on prescriptions and the number of prescriptions dispensed.

4.7 Practical Considerations

4.7.1 Access and Sampling

One of the criticisms of previous pharmacy research has been the lack of representation of employee pharmacists of certain large pharmacy companies as well as the generally low response rates achieved[47,48]. One possible reason suggested for these two criticisms is the fear of commercially sensitive information being disclosed to researchers. The consequences of this situation on this investigation were made very apparent following the involvement of this researcher in a survey of the extent of provision of trusses by community pharmacists for abdominal hernias[322]. A letter from the superintendent pharmacist of a large pharmacy company was sent to the head of the researcher's host department enquiring about the involvement of the pharmacists on the project. Despite

assurances, the company did not approve of the survey and asked its members not to participate. Approval of the present research by the pharmacy companies and organisations was therefore essential if the project was to improve on previous pharmacy practice research. This involved presenting the research proposal to local pharmaceutical committees as well as to superintendents of large pharmacy companies to gain access to their members to allow interviews to be conducted. All pharmacy organisations and companies with more than 10 pharmacies were also sent copies of the questionnaire asking for their input. This combined approach proved to be successful since no objections were made concerning the final survey and access was allowed to a list of pharmacists from one large pharmacy company and two local pharmaceutical committees from which a sample of pharmacists were interviewed.

A further reason proposed for the low representation of employee pharmacists and low response rates of other surveys in pharmacy is the sample used for investigation (see section 2.4.8). Previous studies have taken samples from the register of pharmacies as opposed to the register of pharmacists. These studies have addressed the questionnaire to "the pharmacist in charge" and posted the questionnaires to the pharmacy premises. Employee and locum pharmacists may have passed such questionnaires to their employers and this could have led to their under representation. In addition pharmacy premises are not generally conducive to the completion of long questionnaires due in the main to workload. In this study, therefore, the register of pharmacists was used, for a number of reasons.

The use of a sample from the register of pharmacists allowed the covering letters to be addressed to the individual pharmacist, making the questionnaire more personal and encouraging a higher response rate. In addition the pharmacists would have received the questionnaire at their home address away from the pharmacy premises and thus may have had more time to complete the 12 page questionnaire. This situation also complied with the wishes of one of the multiple pharmacy companies who indicated preference for pharmacists to complete the questionnaire in their own time.

The calculation of sample sizes for a survey are based on the degree of accuracy and the extent of variation in the population. The accepted degree of accuracy in most surveys is a 3% error level[323,324]. The extent of variation was based on a survey of pharmacy

services in Wiltshire FHSA[325]. In this survey for some of the measures the pharmacists' responses were split in to two. The sample size which corresponds to a standard error of 3% and with 50% of the population giving a particular response is in the region of 1000. A random sample of 1000 pharmacists were therefore surveyed. Chapter 6 presents the response rate to the questionnaire and comparisons of responders and non responders. The chapter also discusses the merits of using the register of pharmacists as opposed to the register of pharmacy premises.

4.7.2 Presentation design of the questionnaire

Other practical considerations included the presentation design of the questionnaire, in particular the format of the vignettes. The use of the vignettes was problematic, since the vignettes contained at least 8 components which were varied. Presenting these conventionally would make the questionnaire extremely long and thus would impact on the response rate. The exclusion of the vignettes from the questionnaire was considered, however, the vignettes represented an innovative method and it was decided to investigate the usefulness of this method. Reduction of the number of vignettes was also considered. Although this option would have investigated the usefulness of the method, it would not have added substantially to the main investigation. It was decided to explore different formats of presentation of the vignettes and the introduction of variations within the vignettes.

The final format that was used presented the pharmacists with a general scenario. The vignettes varied two factors. These variations were presented as tables, and the pharmacists were given a set of instructions to introduce the variations into the vignettes (see questions 10, 11, 12, and 23 in Appendix 5).

This was considered appropriate since pharmacists are generally familiar with the use and interpretation of tables. The format certainly reduced the length of the questionnaire without compromising on the investigation. Nevertheless the format was piloted with several pharmacists.

4.7.3 Pilot of the survey

The final format of the survey was piloted in Somerset Health Authority. It was not easily possible to obtain a list of home addresses for the community pharmacists in this health authority, however, the health authority provided a list of all pharmacies. The covering letter was addressed to the pharmacist in charge and sent by post. A response rate of 52% was received after two mailings.

The vignettes seemed to be completed appropriately. There were a number of comments on the time taken to complete the questionnaire and the wording of some of the statements. In particular those which were presented as negative statements. Amendments were made to the questionnaire before the main survey was carried out.

4.8 Analysis of the questionnaire

4.8.1 Non-parametric statistics

Chapter 6 presents the initial analysis of the questionnaire. This consists of reports of consensus amongst the pharmacists for each of the questions. The majority of the variables were categorical therefore non-parametric statistics were used to analyse differences. These tests were mainly used in the analysis of the different scenarios in the vignettes. Another important consideration in the choice of the type of statistical test to be employed was the fact that the responses to the scenarios were given by the same pharmacists. This meant that statistical tests for related samples had to be employed. Initially the data for each scenario were aggregated and these groups were compared using the Friedman two way analysis of variance to see if a significant difference existed between two or more scenarios. Although this test is used to determine if a difference does exist, it can not give an indication of where the difference lies. The Wilcoxon matched pairs signed rank test was used to determine difference between pairs of scenarios and this was used to determine the influence of each of the scenarios on the responses. Since there were a number of comparisons, a more conservative p value was considered to avoid random occurrence of statistical significance. The Bonferoni correction suggested a p value of 0.016 for a significant difference. The comparisons in chapter 6 nearly all have p values below 0.016.

4.8.2 Factor analysis

Chapter 7 presents the advanced analysis of the questionnaire. One of the main methods used was factor analysis. This method was used to explore the relationships between the statements investigating the pharmacists opinions. It is hypothesised that pharmacists' opinions towards different aspects of their role will affect the extent of their involvement in advice giving and extended role services. These opinions were elucidated using over 50 statements. To explore the relationship between these opinions and the outcome measures of pharmacists reported behaviour, one could analyse the effect of each of the statements on the outcome measures. This type of analysis which would involve over 50 statements, would be very cumbersome.

The use of factor analysis was employed for two reasons: to simplify the statistical procedure and the presentation of the effect of pharmacists' opinions on the outcome measures and; to confirm the presence of underlying themes in the statements. Factor analysis explores the relationships between each of the statements by looking at their variations, grouping those which have similar variances together. This technique assumes that the statements grouped together share an underlying concept and as such can be represented by a smaller number of variables.

There are several stages to carrying out a factor analysis. These include preparing the data, determining the suitability of the data set, deciding on the number of factors to be extracted and interpretation of the factors[326]. These stages are explained below.

The initial steps in deciding if factor analysis can be carried out involve the examination of the data in terms of their suitability. Since the data set had a large number of cases, it was decided to exclude cases which had any missing answers to the statements. This left 316 cases for analysis. The statements were then examined to investigate if any correlations exist between the statements. If there are no correlations then this means that the statements are unrelated and unlikely to form one or more factors. The correlation matrix for the 50 statements was examined and statements which had correlations of 0.3 or above were kept, whilst the rest were not included in the factor

analysis (See section 7.2.3 for a discussion of the choice of values). This left 28 statements.

Two techniques were then used to assess whether the correlation matrix is appropriate for factor analysis. The first technique was the Bartlett test of sphericity, which sets up a null hypothesis that the correlation matrix is an identity matrix i.e. all principal diagonal elements are one and all off-diagonal terms were zero. The test requires that the data were sampled from a multivariate normal population. The data were appropriate for factor analysis since the null hypothesis was rejected by the Bartlet test, implying that the statements within the correlation matrix are related. The second test is a measure of the sampling adequacy of the data, known as the Kaiser-Meyer-Olkin (KMO) measure. This test is an index for comparing the magnitudes of the observed correlation coefficients to the magnitudes of the partial correlation coefficients. If the sum of the squared partial correlation coefficients between all pairs of variables is small when compared to the sum of the squared correlation coefficients, the KMO measure is close to 1. Small values for the KMO measure indicate that a factor analysis of the variables may not be a good idea. Measures in the 0.9s are reported to be "marvellous", in the 0.80s as "meritorious", in the 0.70s as "middling", in the 0.60s as "mediocre", in the 0.50s as "miserable", and below 0.5 as "unacceptable"[326] . For the data set analysed here the KMO measure of Sampling Adequacy is 0.68 describing the sampling adequacy as middling, implying that factor analysis can be carried out.

The next step in factor analysis was factor extraction. This involved deciding on the number of factors necessary to represent the statements and the method for calculating these factors. Factor analysis is primarily concerned with describing the variation or variance which is shared by the scores on three or more variables. The two most widely used forms of factor analysis are principal-components and principal-axis factoring. In principal components analysis, all the variance of a score is analysed. In principal-axis factoring, only variance which is common to or shared by the tests is analysed thus taking into account variance due to chance or error. Principal-axis factoring therefore is a more conservative method. For this data set both principal-component and principal-axis factoring were used to add to the robustness of the analysis.

The total variance explained by each factor is called the Eigenvalue. The higher the Eigenvalue the more variance is explained by the factor. This is essentially how decisions are made regarding the number of factors to keep. Factors with high Eigenvalues are kept and factors with low Eigenvalues are rejected. Two main criteria are used for deciding which factors to exclude. The first is known as Kaiser's criterion, which selects those factors which have an Eigenvalue of greater than one. The second method is the graphical scree test (see section 7.2.1). In this method a graph is drawn of descending variance accounted for by the factors initially extracted. The plot typically shows a break between the steep slope of the initial factors and the gentle one of the later factors. The factors to be retained are those which lie before the point at which the Eigenvalues seem to level off. The success of the factor analysis can be judged by the total variance explained by the factor analysis. This is known as the communality of the test. The greater the communality, the greater the confidence in the factor analysis carried out since more of the variance is explained.

Once the number of factors to be extracted has been determined the factor analysis can be carried out. The factor analysis produces a table of relationships between each statement and each factor (see Table 46 and Table 47). These relationships are presented as correlations or loadings. In factor analysis most of the statements will fall under the first factor, although their correlations may not be high. This makes the interpretation of the factors difficult, since the first factor will have a large number of statements some of which are poorly correlated and the subsequent factors will have a smaller number of statements. In order to increase the interpretability of the factors, the factors were rotated to maximise the loadings of some of the statements which were then used to identify the meaning of the factors. The most commonly used methods of rotation are orthogonal and oblique. Orthogonal rotations produces factors which are unrelated and oblique rotation produces factors which are correlated. Orthogonal rotation was used in this analysis since it was intended to explore the independent effect of each theme on the outcome measures. The orthogonal rotation therefore produces a table of statements and their loadings on each factor.

The statements in each factor are then examined for underlying concepts. This involves the same interpretive processes that were employed in the analysis of the interviews presented in chapter 5. Similar statements are grouped together and underlying themes

emerge from the statements. The results of the factor analysis are presented in chapter 7.

4.8.3 Multiple Regression analysis

The second main statistical method used in chapter 7 is regression analysis. This method allows the exploration of the effects of a number of independent variables on an outcome measure. There are two additional features of this method. Firstly the analysis takes into account the relationships between the independent variables and thus the results are more statistically reliable. Secondly the analysis allows predication of the effects of changing the independent variable on the outcome measures. In this project there are many independent variables whose effects on the pharmacists activities and involvement in the extended roles need to be explored. In addition the independent variables seem to be related as is shown in section 6.4.1.1. The value of this technique to this project are therefore clear. A brief description of the principle of regression analysis is given below.

The effect of two variables on each other can often be determined by plotting a scatter diagram of the data. A perfect relationship between the two variables would produce a straight line on a scatter diagram. The relationship between the two variables could then be explained by the gradient of this line. In social sciences relationships between variables are not as straight forward as this and scatter diagrams such as the ones described above are very rare[326]. The idea of regression analysis is to summarise the relationship between two variables by producing a line which fits the data closely. This is called the line of best fit and it minimises the deviation of all of the plots in the scatter diagram from this line. Regression procedures allow the precise calculation of the line. Once this line is known, predictions of the likely values of the dependent variable can be made for given values of the independent variable according to the following equation:

$$y = a + bx + e$$

In this equation y and x are the dependent and independent variables. The intercept of the line is given by a and b is the slope of the line and is usually referred to as the regression coefficient. An error term is included which points to the amount of variation not explained by the equation. Regression analysis which explores the relationship

between a dependent variable and two or more independent variables is known as multiple regression and uses the following equation:

$$y = a + b1x1 + b2x2 + e$$

Two or more regression coefficients are produced which estimate the amount of change that occurs in the dependent variable for one unit change in the independent variables. In addition the regression coefficients express the amount of change in the dependent variable with the effect of all of the other independent variables in the equation controlled. An error term is also calculated which points to the fact that a proportion of the variance in the dependent variable is not explained by the regression model.

The first step in carrying out a regression analysis is to determine whether the outcome variables show a normal distribution[326]. This is important since regression analysis assumes that outcome variables are normally distributed. This can be displayed graphically, alternatively one could examine the similarity between the mean and the median for each of the outcome variables. In addition a measure of skewness can be calculated. If the variable is normally distributed then the values of the mean and medians should be very similar and the measure of skewness is zero or nearly zero. Table 12 below shows the means, the medians and a measure of skewness for each of the outcome variables in this project. The only variable with marked differences between the values of mean and median is the number of interventions on prescription concerning drug interactions which require contact with the doctor. This variable shows a positive skew and thus some caution is required in carrying out regression analysis.

Table 12 Means and Medians for the four outcome variables

Variable	Description	Mean	Median	Skewness
DRUGPW	Number of times contacts are made with the doctor about drug interactions.	2.70	2.00	2.05
CLARYTPW	Number of times contacts are made with the surgery about clarifying prescriptions.	4.78	5.00	0.78
NONPXTPD	Number of times advice is given per day on non prescription medicines.	5.61	5.00	0.65
PRXTPD	Number of times advice is given per day on prescription medicines.	5.58	5.00	0.48

Before carrying out a multiple regression analysis, it is advisable to obtain an indication of the variables which might prove to have a significant effect on the dependent variables. This involves a simple regression between the dependent variable and each of the independent variables. The results of the simple regression analysis are presented in chapter 7. The regression program within SPSS has a large number of options for carrying out multiple regression analysis. The option used in this project was the Forward stepwise regression method which comprises of adding variables to the model according to the statistical significance of their contribution in explaining the variance in the dependent variable. The model is finalised once no more variables are eligible for entry. The significance level set for including variables in the model was 0.05. The multiple regression analysis for each of the outcome variables are presented in chapter 7.

The output for the multiple regression analysis displays a number of values that are used to judged the quality of the multiple regression analysis carried out. Firstly the multiple R, or the multiple correlation expresses the correlation between the outcome variable and all of the independent variables. The closer the multiple R to 1 the greater the confidence of the variables in the regression analysis. The F ratio tests the null hypothesis that the multiple correlation is zero in the population from which the sample was taken. If this is rejected then once again greater confidence is attached to the results of the analysis. The R square, also known as the coefficient of determination, expresses the percentage of the variation in the outcome variable explained by all of the independent variables in the regression model. The output also provides the unstandardised regression coefficient, B, for each of the variables in the model. The B value can be used to interpret the effect of each variable on the outcome variable. However, one can not make comparisons of the effects of each variable since the variables have different units of measurement. This has a direct effect on the magnitude of the unstandardised regression coefficient. In order to be able to make comparisons of the regression coefficients one needs to standardise the units of measurement. The result is known as a standardised regression coefficient or Beta weight. This coefficient is presented as Beta in the output of the regression analysis. Tolerance is a test to ensure that the independent variables in the model are not too highly related to each other, otherwise the model may be suspected of exhibiting multicollinearity. Multicollinearity means that the regression coefficients may be unstable and vary from one sample to

another. High values of tolerances indicate that multicollinearity is unlikely. A test of statistical significance of individual regression coefficients is produced through the calculation of a t value (T) and a two tailed significance test, Sig. T. Each of these terms are explained with reference to the outputs of the analysis in section 7.3.4.1

The multiple regression analysis described above is suitable for the normally distributed outcome measures such as the number of interventions on prescriptions and provision of advice. However, involvement in extended role activities is not normally distributed since the variable is categorical. Logistic regression analysis, whose principles are essentially the same as multiple regression analysis, was employed to investigate the effect of a number of variables on the categorical outcome measure, involvement in extended role activities.

In summary regression analysis was used to determine the magnitude and significance of the effect of the independent variables on the pharmacists' reported everyday activities and their involvement in extended role services. The results of this analysis are presented in chapter 7.

4.9 Assessing the quality of the research

4.9.1 Limitations of methods

This is the first study to investigate the extended roles of the community pharmacists by focusing on everyday practice and by using both qualitative and quantitative methods. Findings from the qualitative stage have been incorporated into and confirmed by the quantitative stage.

The use of vignettes was one of the ways in which the qualitative themes were investigated quantitatively. There are limitations to the use of vignettes used in this study. These include the style of presentation of the vignettes in the survey and the time required to complete the vignettes. This application of vignettes dose not capture all of the pharmacists' thought processes, nor can it investigate all of the social factors. These limitations, however, may be addressed by using vignettes in face to face

interviews with pharmacists. It is also very tempting to extrapolate the responses given to vignettes to real life situations, however, vignettes present hypothetical situations.

Statements relating to important influences on pharmacists' behaviours and attitudes were derived from the interviews. Factor analysis was carried out on the statements which produced 6 underlying factors. The limitations of the factor analysis include the exclusion of a number of statements due to low correlations, and residual variance not explained by the six factors. This implies that there are other underlying concepts that have not been taken into account in this investigation.

The effect of the factors, representing groups of statements, and a number of other variables on pharmacists' estimated behaviours were investigated using regression analysis. Interestingly as well as a number of physical attributes a number of the factors were shown to be significant in influencing the pharmacists' behaviours, thus confirming the importance of the qualitative themes. There are also limitations to the regression analysis used here. The regression models do not explain all of the variations in the outcome variables implying that there are other factors which also influence pharmacists' behaviours. In addition explanation of the effects of some of the variables on the outcome measures were difficult due to the nature of the variables. A characteristic of regression analysis is the calculation of the individual effects of variables on the outcome measures. Whilst this is desirable in terms of statistical analysis, the qualitative findings have shown that these variables are linked to some extent.

Despite the limitations, the approach to this study which combined qualitative and quantitative methods, especially the use of vignettes, the factor analysis of the statements and their subsequent incorporation into a regression analysis represent a methodological contribution to both PPR and HSR.

4.9.2 Rigour of the study

For research to have an impact on the area being investigated, it is important to have criteria which help to make an assessment of its findings. In relation to this project, this process of assessment is interesting since different methodologies with different

philosophical underpinnings have been employed (see section 4.2). In terms of this project, the process of assessment is carried out at two levels. Firstly an assessment of the overall research project is discussed since the two methodologies have been used to complement each other, followed by an assessment of the different methods used in the project.

A pragmatic approach was taken in this investigation and a number of methods were used to address the research question. This is often referred to as "method triangulation". The use of multiple methods adds to the quality of the project since data from a number of sources facilitates a better understanding of the area of investigation[311,327]. For example in this project the qualitative interviews highlighted several issue that were considered important. These were incorporated in the survey as vignettes which compared their relative importance, thus facilitating a better understanding. In addition findings of the research can be confirmed or discredited by each method adding to the overall findings of the research. For example the factor analysis in this research project essentially comprised of the qualitative findings from the interviews. The multiple regression analysis showed that these factors had a significant effect on outcome variables such as advice giving, interventions on prescriptions and involvement in extended roles.

An assessment of the overall research project by readers is also aided by a knowledge of influences on the researcher[311,327] . A biographical text is inappropriate for this thesis, however, throughout this thesis there are reflective accounts of the relationship of the researcher and the topic of investigation. These accounts are included: in chapter 1 with the development of the role of the pharmacist and the sense of frustration, shared at the time by this researcher, that the new roles had not been implemented to any extent (see Appendix 2); in chapter 2 which outlined the growth of pharmacy practice research, including previous articles by this researcher, to justify the extended roles of pharmacists; in chapter 3 which highlighted, for the researcher, the importance of attempting to detach oneself from the occupational goals of extending the role of the pharmacist; finally in this chapter which has outlined the theoretical and pragmatic influences on the choice of methodology.

The second level of assessment of the research project is based on criterion accepted for each methodology. Although these criterion share the same aims, namely ensuring the trustworthiness and believability of the research, one can not make judgements of each methodology based on criterion derived from the other methodology[311,327-330].

An assessment of the qualitative stage of the project would need to consider the sampling of the pharmacists for the interviews, the data collection, and the data analysis[311,327-330]. The aim of the sampling procedure was to incorporate pharmacists from a wide range of practice settings, ages, gender and employment status (see section 4.2). The choice of data collection was one of unstructured interviews and the consideration given to the conduct of the interviews have been outlined above (see section 4.4.2). The data analysis initially took the form of a descriptive account of pharmacy practice, followed by further analysis which looked for reported influences on pharmacists' actions and decisions. The aim of the presentation of this stage of the analysis was to provide an account to allow the reader to learn the rules and language sufficiently to function in the research setting[327].

An assessment of the quantitative stage of the project, would also need to consider sampling procedures to ensure representation of the diverse population of community pharmacists[323,326,331]. The sampling procedures are discussed in section 2. There are several issues concerning the design of the questionnaire. Firstly the variables selected to collect the data. This was aided by a consideration of the previous research literature as well as the qualitative stage. The qualitative stage also aided the construction of a number of statements which not only considered different influences on pharmacists but also used the appropriate language. The reliability of these constructs were confirmed by the statistical finding that they, as expected, affected pharmacists' reported behaviours. The final point of assessment discussed here is the statistical techniques used in the analysis of the data. These techniques are determined by their level of measurement and their distribution. In this project both non-parametric and parametric statistical techniques were used[323,326,331].

4.10 Summary and Discussion

In summary, this chapter has discussed philosophical aspects of methods of investigation by considering the different methodologies available to health services researchers. The discussion highlighted many points, in particular the importance of social and professional context. The practicalities of carrying out the investigation have also been discussed by reviewing previous pharmacy practice research in chapter 2 and following good practice guidelines for Health Services Research. These two consideration have informed every element of this study, including: the decision to carry out both qualitative and quantitative investigation; the recruitment and sampling of pharmacists for both the qualitative and quantitative stages; using the data from the interviews to inform the design of the questionnaire; the use of vignettes in the questionnaire; and the interpretation and confirmation of the results of the statistical analysis of the survey.

CHAPTER 5 QUALITATIVE THEMES AND QUESTIONNAIRE DEVELOPMENT

5.1 Introduction

The aim of this chapter is to describe the analysis used in the qualitative stage of this project and to present its findings and their relevance to the extended roles of pharmacists. The first section summarises the face to face interviews, the recruitment of the pharmacists and the manner in which the interviews were conducted. The chapter then goes on to describe the approach to the analysis of the interviews. The findings of the interviews are then presented as descriptive and analytical themes. Finally the chapter presents the incorporation of the themes from the interviews in the questionnaire survey.

5.2 Face to face interviews

The use of qualitative methods can present difficulties for researchers trained in the traditional methods of carrying out investigation. The theoretical arguments for carrying out qualitative research were understood at an early stage in this project (see section 4.3). The methods used in this type of research proved more difficult than initially anticipated by this researcher due to the presence of several anxieties (see section 4.4). These anxieties were addressed by the pilot interviews. For the main study

a sample of pharmacists representing a broad age range, employment status, gender and practice locations were recruited to the project and interviewed. The interviews took the form of general discussions and although a topic guide was available it was only used to remind the researcher of the topics covered in the interview. The interviews were conducted in a manner to form a relationship with the pharmacists so that they were happy to discuss how they felt about their work and the roles that had been suggested for them.

5.3 Analysis of interviews

Most of the pharmacists agreed for the interviews to be tape recorded. These tape recordings were later transcribed. The initial analysis consisted of reading through the transcriptions and making notes on interesting quotes, issues or themes that were observed. These were hand written notes made at the side of the transcripts. These notes were then condensed to form codes which were also assigned to certain portions of transcripts. These pointed to similar quotes in other transcripts and the implication of the themes for the roles of the pharmacists.

Miles and Huberman point to the dangers of data over load and the need for the management of the data[332]. The initial approach to analysis described above certainly encountered these two dangers. This type of analysis familiarised the researcher with the transcripts. However, the end product was an excessive number of codes, some of which were similar and required merging and some of which were different but could be linked. Manual methods of data management such as the use of multiple copies of transcripts and "scissors and paste" methods were considered, but were rejected in favour of computer assisted data management.

The catalyst for the more formal analysis of the transcripts was the computer program NUDIST. Although time was spent preparing the format of the transcripts for use within NUDIST, learning its functions helped to organise the data. Initially the transcripts were analysed as described above, creating codes relating to segments of the transcripts. Thus similar quotes from the different interviews relating to similar topics were grouped together under certain codes. The program allowed a list of the codes to

be generated which were then condensed by merging certain codes. Links could also be made between the codes and presented as diagrams. The program allowed the easy retrieval of quotes relating to each code. Thus the process of data management was greatly simplified.

The most useful feature of the program was its memoing facility. This allowed the recording of notes at the time of coding relating to either explanation of the codes, links to other codes, reflections of the researchers' own experiences or the implications of the findings. The memos that were made were then printed and formed the basis for a descriptive account of the codes.

As discussed above, there are many levels and types of analysis of qualitative. In this project the qualitative data were used to inform the design of the survey and to highlight issues within pharmacy practice that have implications for the extended roles. The analysis of the qualitative data produced many codes which although very interesting were not considered a high priority for the project. Thus the research became more focused and concentrated on every day issues which would be incorporated into the survey.

In the following sections initially the themes relating to the everyday activities are presented. These are referred to as "descriptive themes". As well as describing the every day activities, these themes highlight the issues that were considered important by the pharmacists as interpreted by this researcher. The section then presents "analytical themes" which help to explain some of the reasons behind the every day activities and the issues highlighted by the descriptive themes. The final section describes the incorporation of the descriptive and analytical themes into the quantitative survey design.

5.4 Descriptive themes

5.4.1 Introduction

The transcripts were initially divided into the sections relating to the topic guides to aid the data management process. Thus there were sections for the background of the pharmacists, their education, careers, the image of pharmacy, and their work. As the research became more focused in particular investigating the extended roles in the context of every day work in the pharmacy, the sections relating to the work of the pharmacists were analysed further and subdivided into codes such as nature of work, dispensing, OTC medicines, and extended services. These codes were themselves subdivided into yet further codes. The NUDIST program displays this type of analysis as a hierarchical tree root structure with the first codes at the main level and their daughter codes at a lower level.

The proposed extended roles for pharmacists are a mixture of the expansion of their every day activities and the establishment of new services. It seemed necessary therefore to investigate the extended roles in the context of their current every day activities. The interviews were examined for extracts relating to the every day activities of pharmacists. These extracts were coded as "work" and were further sub-divided into:

- Nature of work
- Dispensing
- OTC medicines
- Extended roles

5.4.2 Nature of work

There are many aspects of pharmacists' every day activities. The main elements are described below.

Simultaneous activities

The pharmacists talked about having to do a number of activities at the same time. For example dispensing and supervision of medicine sales. This makes their work very unpredictable and impacts on the extended roles in that they are not able to plan the time needed to perform the extended role activities. The pharmacist below explains:

Pharm: I am sure there aren't many instances where they haven't got something else they could do. Whether it'd be paperwork or you know sort of checking the stock is at the correct levels or they have to review the medication that has come through or keep up to date with the journal or something you know. There is always something that will fill your time. It is very rarely that there are people who are standing around reading say the newspaper whether that is because they haven't got effective time management because they have never sat down and tried to analyse where they could better spend their time I don't know. I don't think there is too much leeway there because you can't dictate when your next patient is going to come through the door.

Extra work

In addition the extended services are seen as "extra" activities that have to be carried out by the pharmacists who are already personally responsible for a number of other activities in the pharmacy. In the extract below the pharmacist explains that all extra activities have to be carried out within the normal routine of the pharmacy and this presents difficulties.

Pharm: it all has to be done while you are doing the other things, plus on top of that because of all the new services that everybody is providing now the monitored dosage that has to be done now which takes a couple of days to do
**Q: yeah*
Pharm: I mean on average sort of a couple of nursing homes with twenty odd patients those take and that has to be you have to get that in during your routine

Juggling activities

The pharmacists explained that in actual daily practice they have no set way of dealing with the different demands on their time. Instead they juggle their activities according to the situation in which they find themselves. The pharmacist below was asked how he prioritised the different activities.

Pharm: so you get to the situation of asking while you are dispensing a prescription or you may have a rush. You have a few prescriptions waiting, you will get someone who will want to see the pharmacist and you mustn't keep them waiting for too long you mustn't keep the patients waiting for too long so you must draw a balance somewhere.
**Q: how do you make that decision I find it difficult*

475 Pharm: well basically you do two to three prescriptions quick
476 ones hoping that there are no big ones right tell the other
477 patients can you just give me a couple of minutes let me
478 just finish off then I will come down. Most of the time they
479 do understand

The reports recommending an increase in the advisory role of the pharmacists require pharmacists to have this activity as their main priority [13, 16, 34, 35]. However, attachment of priority to certain activities is not a straight forward procedure. The extract above implies that the pharmacist *"draws a balance"* by considering workload, the nature of the prescription, and patients' expectations. This type of question was posed to a number of other pharmacists and although the answers were not identical in every situation, there were similarities in the considerations that they mentioned. The considerations such as the patients' expectations, the workload of the pharmacist and the nature of the prescriptions are elaborated below.

Presence in the pharmacy at all times

Pharmacists are legally required to be present in the pharmacy at all times[26]. The need for pharmacists to be present on demand in the pharmacy was also touched on above in the first extract under the nature of work. This has also frequently been cited as one of the barriers to pharmacists' extended roles. The interviews confirmed these findings since many pharmacists reported having to be in the pharmacy at all times a problem. It was a particular problem relating to the establishment of new services which required pharmacists to be away from the pharmacy either to receive more training or to liaise with other health care workers.

In the extract below the pharmacist is talking about visits to GPs, as part of a project established by the health authority. He explains that he would need to employ another pharmacist to cover for him whilst he is away from the pharmacy. This incurs costs since he would need to employ the locum for the whole day, rather than the one or two hours that are needed to attend meetings.

109 PHARM: Well the thing is - another thing that comes up I say right you want me to go down, I go down there. I have to get a locum in - now I pay my locums £105 per day okay. They pay me for a visit £100. Say your only visiting for a couple of hours. You try and get a locum - would you come

into my shop for a couple of hours? - you would?
110 **Q: Not unless I knew - not unless we had a great friendship.*
111 *PHARM: Indeed it would have to be a great friendship -*

Summary

In summary the nature of work in a pharmacy is such that a number of activities are carried out at the same time and the demands on the pharmacists are unpredictable. All of the activities in the pharmacy require the involvement of the pharmacist to some extent and the pharmacists feel personally responsible for these activities. In addition both legally and commercially pharmacists are required to be present in the pharmacy at all times. The nature of work in the pharmacy therefore has implications on the extended role services. These are seen as extra activities which place more pressure on the pharmacists and have to be fitted into the daily routine. In addition the requirement of the pharmacist to be present in the pharmacy at all times prevents them from pursuing extended services outside the pharmacy. In practice pharmacists do not have set priorities to deal with the demand on their time, instead they adopt strategies of juggling their activities according to factors such as their workload, the nature of the demand on their time and, the patients expectations.

5.4.3 Dispensing of prescriptions

The dispensing of prescriptions is one of the main activities of the pharmacists. The proposed extension of this activity essentially comprises three elements:

- pro-active provision of information to people on prescribed medicines, in particular the side effects that they may encounter and how to use their medicines to ensure that the medicines achieve their desired outcome;
- pro-active monitoring of prescriptions for drug interactions and if needed contacting prescribers to suggest alternatives;
- monitoring of patients on long term medicines ensuring the medicines have their desired effect.

The first two elements have become incorporated into pharmacy practice to a certain extent, whilst the third is a relatively new proposal.

Delegation of activities and the final check

Several proposals have been made in respect of the dispensing procedure to free up the pharmacists' time so that other activities such as those detailed above could be undertaken. The proposals include the delegation of certain activities in the dispensing procedure to other pharmacy staff and the relaxation of the legal requirement for the personal supervision of the dispensing procedure by a pharmacist. In most of the interviews when the pharmacists talked about the dispensing procedure they placed a great deal of emphasis on the accurate dispensing of the prescription. However many felt that they were too closely involved in the dispensing procedure. In terms of the delegation of activities to technicians the pharmacists were happy as long as they had "the final check" on the accuracy of the prescription. The pharmacists implied that only they had the necessary training to be able to take responsibility for the accuracy, thus many did not favour the relaxation of the legal requirement for pharmacists to supervise the dispensing procedure.

553 Pharm: the procedure itself is a simple one it can be done by
554 anyone you can train a person to do it which a lot of
555 people have done but you do need supervising
*556 *Q: supervising for what*
557 Pharm: or doing it by a professional Emm Pharmacist
*558 *Q: is this the final check that you mentioned earlier*
559 Pharm: the final check but errors do sometimes arise and really
560 that is why we are there for

Thus the final check and the responsibility for the accuracy of the prescription were the points which distinguish pharmacists and technicians roles. Since the pharmacists feel that the accurate and efficient dispensing of medicines necessitates the pharmacists involvement, the delegation of the dispensing activities to technicians dose not free the pharmacists to be involved in extended role activities.

Priority of dispensing in relation to extended roles

To many pharmacists the ideal solution would be the availability of two pharmacists. As the pharmacist below who works with another pharmacist explains this would allow the extended roles, such as the provision of advice, to be carried out without disrupting the dispensing procedure.

1250 PHARM: but yeah and that again the only reason why I have got that is
1251 because of personal experience. That they know most of the time
1252 there are two of us working here and I can work, you know, one of

1253 us will advise and one of us will therefore be doing the work but
1254 on a lunch break where there is only one of us, emm, no I am not
1255 particularly concerned about the people who are waiting.

The extract above also implies that the main priority in the pharmacy is the dispensing, the provision of advice seems to take second place and is readily available only when there is another pharmacist "to do the work". Priorities were also highlighted by another pharmacist who described his experience of moving from a quiet to a busy pharmacy, described in terms of dispensing workload, where he had to learn issues to do with dispensing before consideration could be given to people who require advice.

387 ..... But that has only
388 come about certainly since within the last six to eight months
389 and that's because I moved from places that weren't doing
390 wasn't doing any business at all. They were slow Pharmacies well
391 this is again in comparison to the quantity of work that I am
392 doing in a day, but slow Pharmacies to somewhere where you
393 are constantly on the GO and you have to get used to that
394 volume of work before you can then start giving consideration to
395 people. Because when I first started there for the first three four
396 months I was having trouble keeping up with the volume of
397 work that was there and getting it right without having to inter-
398 disperse that with having to go and speak to someone on the
399 counter when you are learning a new machine when you are
400 learning different emm even different manufacturers of the
401 tablets come past and you have got to learn all that stuff and you
402 have got to stop and you've got to think ohh I've actually got to
403 go and find that stuff to know that that is the right stuff.

Summary

In summary the emphasis on the dispensing procedure is the accurate and efficient supply of medicines to people. This is seen as the personal responsibility of the pharmacist. Although pharmacists are happy to delegate certain dispensing activities to technicians, they feel that only the pharmacist has the skills to ensure the accuracy of the prescription thus they insist on carrying out the final check on the dispensed prescription. As explained above pharmacists have to make time management decisions and they have to attach priorities to their work. The dispensing of prescriptions seems to be the main priority of pharmacists. The implication of these findings on the implementation of the extended roles is that pharmacists do not attach a high priority to

these roles in relation to the traditional dispensing activities. In addition the proposal of delegation of dispensing activities to technicians to allow pharmacists to be involved in the extended roles is limited since pharmacists feel they should be involved in the dispensing procedure.

5.4.3.2 Provision of information on prescribed medicines

A proposed extension of pharmacists' every day activities is the increased provision of information on prescribed medicines to patients.

Support for provision of information on prescribed medicines

Pharmacists seem to be in favour of provision of information to patients on prescribed medicines. The reasons being that they do recognise side effects of drugs and that they believe that people should take more responsibility for their own health.

58 *PHARM: So basically, my greatest thing is that patients must be more responsible now, if this government continues. They got to be responsible for their own health and they got to know what's happening with these tablets. No question about it, if they're having something. This is what all my customers come in and have blood pressure, "well make a note of it" if they go to the doctor ask them what it is. If they say its okay that's not good enough, you want a figure. And put it in your diary.*

Consequences of providing information

Generally pharmacists have had positive feedback from the public on the provision of information and are thus happy with this role. They do have concerns, however, about possible consequences of provision of information to people. One of the consequences is the disruption of the doctor-pharmacist relationship. This seems to stem from the pharmacists not knowing how much information the doctor wants the person to have about their treatment as the extract below explains:

59 *Q: Do you give them information.

60 PHARM: Yes I feel that the days have gone, I'd know you wouldn't but I can remember in Boots where you put one to be take three times a day and you did not tell the patient what they were taking. Now that was, if you did tell the patient what they were taking you had a telephone call from the doctor telling you not to do that. Really yes. Many the times I've got into trouble for doing that, telling them what they're having.

Pharmacists feel that too much information on prescribed medicines will worry the person to an extent that they will not only not take their medicines, but will go back to the doctor and question his prescribing, thus implicating the pharmacist. In the extract below the pharmacist was discussing the implications of provision of information to people about prescribed medicines and had mentioned that this could be dangerous:

73 *PHARM: Dangerous in so much that it may go against the ethical connection between the Pharmacist and doctor.*

74 **Q: Right, how do you see that?*

75 *PHARM: It may be that the doctor may see the patient as being a bit of a worrier or whatever and he doesn't want the patient to be concerned about the drugs they're taking and - I've got a couple of things where the patient's gone back and said I've said possible adverse reactions but don't worry about it. And they've gone straight back to the doctor and said "here I'm not taking this."*

76 **Q: So what's*

77 *PHARM: Well yes. I had a phone call then and he said what do you mean by telling the patient this could cause that and this could cause that?..... ..... Now that's the type of thing that's dangerous. You're always treading on doctor patient relationships whenever you start discussing the effects that the drug may have. The doctors made a decision to put the patient on that drug, and the patient would usually come back to the Pharmacist rather than worry the doctor saying here these tablets are doing this and that and all this business and what do you say? Go back to the doctor again? Or do you say this is why its doing this? You know*

As part of the strategy to extend the role of the pharmacist in the provision of information on medicines, both pharmacists and the public have been encouraged to view pharmacists as experts on medicines. On the one hand this provides pharmacists with a certain amount of kudos in that people are increasingly asking for advice. Pharmacies whose pharmacists provide more information to people e.g. in the form of information leaflets, also see financial benefits in that people will take their prescriptions to those pharmacies. However, the public have certain expectations of experts that not all pharmacists believe they can fulfil. They feel that at times there is no right or wrong answer. There is also a fear of the query needing a more in-depth discussion with the answer becoming too complicated both for the pharmacist and for the person. In addition the discussion will take up more time, which is of premium in the pharmacy.

is the pharmacist an expert? In a sense but in a sense not. You can have teams of experts - you can have an expert team. One man too much - too much for one man. Okay I know more than Joe Bloggs like that but still don't know enough and I feel very conscious of that. There's too much to be known and I'm harping back to what we said before maybe the emphasis should be on being able to tap into the information as and when required. But people do seem to want a yes or no answer don't they. They want an answer - they think there's an answer to everything. You know life isn't that simple.....

..... I want to say I don't know, its not known or we're not sure, maybe this way or maybe that way but in the end you say yes or no. Which will be the best for you I think this will work.....

**Q: Yes, that's tricky as well*

PHARM: Well yes it is, sometimes you can get yourself into trouble. Because you get too complicated.

Summary

In summary provision of information on prescribed medicines to the public is favoured by pharmacists. The reasons being that they feel people should know about medicines, their side effects and what to do if they experience side effects. Provision of information on medicines also gives the pharmacists a certain amount of kudos and implies the pharmacist is an expert. Once again provision of information on prescribed medicines has financial implications in that people will bring their prescriptions to pharmacies where additional information is provided. This development however presents several difficulties. Pharmacists feel that by providing information to patients on medicines prescribed by doctors will disrupt the doctor-patient relationship and thus strain the doctor-pharmacist relationship. There is also concern that information on prescribed medicines will worry patients to an extent that they will not take the medicines and thus their therapy will fail. As experts, pharmacists receive queries about medicines that they feel unable to answer. This raises difficulties in that pharmacist will lose face with the patient if they are not able to answer their queries. In addition explanations may be complicated and place pressure on the pharmacists' time.

5.4.3.3 Interventions on prescriptions

Pharmacists have been encouraged to monitor prescriptions for drug interactions and to contact the prescriber to suggest alternatives as part of their extended roles. The main development to encourage this role is the pharmacy computer programs with drug interaction software and records of medication. Although the computer programs

highlight many drug interactions, the pharmacist has the final decision of taking action and intervening on the prescription. It was therefore decided to investigate the pharmacists' considerations in intervening on prescriptions that produce drug interactions.

Deciding to intervene

There were several factors which had an influence on the pharmacists' decision to intervene on a prescription. The severity of the interaction was very important. The computer programs have different settings for the severity of the interaction. The pharmacist below explains the usefulness of the interaction software as well as the intervention which consisted of refusing to dispense the prescription and contacting the doctor.

41 *PHARM: Yes, you get one two three four star warning. And that has come up trumps. On a couple of occasions. Once it yelled out and check that up, don't take it. What do you mean don't take it. The patient has been taking the two together. It said you can't.*

42 **Q: That's what the doctor said.*

43 *PHARM: No its what the hospital sent her out with..... .....We stopped it because luckily they only gave her so many drugs and of course when the doctor wrote the prescription he just wrote down what the hospital said. And then it came into filex and bang four stars, do not give this patient under any circumstances so anyway we refused to do it and stopped it there and then.*

Similarly to the provision of information on prescribed medicines, the pharmacists thought interventions on prescriptions represented good pharmacy practice. This activity brought a certain of amount of kudos to them as well as having an increase on their business through the patient feeling more confident in the pharmacist.

Significance of the drug interactions

Although the pharmacists relied on the computer systems to notify them of the drug interactions, they were not always convinced of the interactions. A number of pharmacists said that if they intervened every time the computer system alerted them of a drug interaction, they would be intervening on every prescription. They stated that their interaction software did not have the ability to consider current medication but would highlight all possible interactions. In addition a number of pharmacists felt that the interactions that were highlighted were generally theoretical in nature. The extract

below provides an example of the types of decisions pharmacists make and the reservations they have regarding the drug interactions.

783 sometimes as I say the interactions that we need to be careful
784 about them, but in other cases we have to, we have to say to
785 ourselves really these are set at such a high level of Emm
786 warning you know. The red alert is far too finely set it should
787 only be on the yellow alert or maybe even just a green alert
788 but it is set far too much on a red alert and I worry sometimes
789 that we get ourselves into trouble

In addition to the inaccuracy of the drug interaction software, many pharmacists expressed a belief that some drug interactions were part and parcel of the treatment, that they were known to the prescriber and that the patient had been stabilised on the treatment and thus the interaction had been accommodated for. Similarly to the provision of information on prescribed medicines, pharmacists felt that they would possibly get into trouble for highlighting some of these types of drug interactions. The pharmacist dilemma is whether to contact the doctor for a drug interaction that may not be significant which will lose face with the doctor, and worry the patient unnecessarily.

828 they have been stabilised on the thing and therefore the
829 reactions to be taken in its context there is a reaction but it is
830 not serious it is potentially serious it is potentially death
831 threatening but it is not serious in this context and as long as
832 we remember that we then don't make a fool of ourselves

Pharmacists' perceived responsibility

There are occasions that the pharmacists have contacted the doctor and the doctor has said to the pharmacist to dispense the prescription accordingly. Many of the pharmacists had stories of this situation in which the pharmacists view of the interaction was different to that of the prescriber's view of the interaction. These situations seemed to highlight what the pharmacists thought was their role in intervening on prescriptions. Some of the pharmacists were concerned about their legal liability. In these situations they indicated that they would make a note of their conversation with the GP, so that in case of litigation they would have fulfilled their responsibility of informing the GP about the drug interaction. The extract below indicates that the pharmacists' role in intervening on prescriptions which had drug

interactions was to inform the doctor and that it was the doctor's decision to decide if the interaction was significant or not.

situation where I would like to get to where the doctor takes
your point of view on and can if he wants to say well I no I do
actually think this is the better way of doing it then you just back
off straight away and you say fine that is no problem that is his
ground and that is his area of concern. But there should not be
an area where you want to phone the doctor up and tell him
something and you worry about what the doctor is going to say
or you think is this my position or is it not? It is in actual fact the
second one is this my position or is it not rather than worry
about the doctor.
**Q: The responsibility*
PHARM: yeah I have got to the stage where if the doctor isn't going to
listen to what I have got to say, emm fair enough it is no skin off
my nose.

Relationships with local GPs

The extract above pointed to an important point which was investigated further namely the relationship between the pharmacist and the doctor who would be contacted regarding the prescription. Many of the pharmacists explained that there were some doctors they were hesitant about contacting regarding drug interactions whilst there were other doctors who the pharmacists were more comfortable about contacting. One of the pharmacists even indicated that they would ask the patient to take the prescription elsewhere rather than contact a particular doctor about a prescription which had a drug interaction. There was uncertainty about the awareness and knowledge of doctors in drug interactions. The pharmacists pointed to a lack of contact with doctors at any stage in their training and in current practice for this uncertainty. This may point to the reasons behind the pharmacists generally only intervening on major drug interactions that were well known. This was reflected in the pharmacists' recounting of their successful interventions, in that the interactions are very well known and straight forward eg Warfarin and Aspirin, Pseudoephadrine and Atenolol, or interventions when the dose of the medicines were not correct. In these situations pharmacists refuse to dispense the prescription.

Summary

Pharmacists seem to have a dilemma as whether to intervene on prescriptions and to contact the prescriber regarding drug interactions. They tend to rely on the computer software program to inform them of the drug interaction, however, they are not always convinced of the significance of the interaction. They are also concerned about bothering the doctor and worrying the patient unnecessarily. They make several assumptions such as the patient has been stabilised on the drug interaction, especially if the prescription is a repeat and that the patient may no longer be taking one of the drugs that is interacting. They only tend to intervene on prescriptions where there is a major, obvious and well known drug interaction. Pharmacists generally see their role in the intervention as one of informing the prescriber, it is for the prescriber to decide if the intervention is significant or not. There is concern over possible confrontation with the prescriber if pharmacists intervene on a prescription. Many of the pharmacists described situations in which they had such a confrontation and were hesitant about contacting a prescriber that they had had a confrontation with. Thus their decision to intervene on prescriptions was also influenced by the relationship that they had with the prescriber.

5.4.4 OTC Medicines

Pharmacists have traditionally been involved in the sale and recommendation of non-prescription medicines to the public. Recent developments which have aided the extension of the pharmacists role in this area include the reclassification of a number of medicines from POM to P category, and the increase in the workload of GPs which has led to the encouragement of the public to treat their own minor ailments (for a full discussion see section 1.6). The proposals for the extension of the role of the pharmacists in this area fall into two categories:

- pro-active involvement in treatment of minor ailments
- supervision of the sale of medicines

Support for a role in OTC medicines

Pharmacists considered their role in OTC medicines as very important for a number of reasons. Firstly that it brought them job satisfaction and many pharmacists quoted this as one of the main attractions of pharmacy as a career. Secondly OTC medicines

represented one of the main elements of the business of the pharmacy as the extract below explains.

493 *Pharm: regular clientele counter prescribing is also important*
494 *because that is going to bring in business and also*
495 *emphasise your professionalism because someone has*
496 *come in and asked for I don't know some ailment and you*
497 *are there to help out and we have got new products now to*
498 *help out these minor ailments*

Thus there was support for an extension of this role and the increase in the number of medicines available from the pharmacy. The pharmacists' role in OTC medicines is not just one of recommending treatments for ailments but also one of supervising sales of medicines. The pharmacist above went on to explain:

505 *Pharm: Supervising is important because for one thing I*
506 *mean these products are getting increasingly stronger*
507 *than they used to be you know. The new products on*
508 *the market so they can be a bit more dangerous and with*
509 *the continued increase in the use of medication and what*
510 *have you even on regular medication there is a possibility*
511 *of an interaction and we are learning new things maybe ten*
512 *years ago, Aspirin, was a safe drug to take and now*
513 *Aspirin has so many contra indications that one has to ask*
514 *questions which only we can ask as the Pharmacist or our*
515 *assistant counter assistant who knows more about it than*
516 *the than your ordinary check out girl at the Sainsbury*
517 *counter*

There is concern about the potency of the newer medicines recently available in the pharmacy (reclassified from POM to P), and the interactions that may occur with the medicines. Also there is concern over the safety of the newer medicines.

Advertising of medicines and requests for medicines

There is a considerable amount of advertising associated with the newer medicines. This although raising the awareness of the public as to the availability of a number of products that are only available in pharmacies, may be seen to undermine the role of the pharmacist in OTC medicines. Instead of the public approaching the pharmacist for a recommendation, they now ask for a specific product by name as the extract below describes.

800 *Pharm:..... It makes them aware of*
801 *the new products on the market and they will come in as a*
802 *result of that. It will suddenly make them aware that they*

have been having this medical condition and there is something on the market and yes lets go and see the Pharmacy and we are protected that it is only available form the Pharmacy. But on the other hand they do ask for it by name and then sometimes if you tell them that it really isn't the one for you at this stage because of the advertising they are adamant that that is the product they want and if you ask them to go without the sale itself then they do feel unhappy about it.

Pharmacists feel that in these situations they are not even able to perform their supervision role, since if they intervened and refused the sale it would produce a confrontation with the person buying the medicine who is not expecting pharmacists to intervene on a sale. This would upset the person buying the medicine who would simply go to another pharmacy and buy the medicine. This situation is described below.

PHARM: Yes its a very difficult situation. So if you don't sell you're losing out on the sale, you're creating an impression of self important you're stuck up toffee nosed whatever. I'll just go down the road I'll go to Peters or I'll go to Hills and buy it there. Or I'll know what answers to give when I go there. You trap them in answers sometime, you ask them questions and they give you all the answers and you say wait a minute you can't have that. And then they go and say I want the Daktarin cream for a little fungal infection rather than something else. It's difficult.

Once again there is a feeling of personal responsibility to ensure the appropriate sale of medicines, unless the medicine has been recommended by a doctor. Pharmacists think that the public do not understand the pharmacists' supervision role, that the medicines sold in the pharmacy could be dangerous, nor do they recognise that the pharmacist is liable for the product that is sold. The extract below again describes a situation in which the pharmacist refuses a sale in the first instance, but would be happy to make the sale if it has been recommended by a doctor.

if they want something and you try and tell them it's not going to be in their best interest or medical interest for that matter. Then they said it's been advertised and therefore if you can buy it, it should be safe. Unfortunately that's the mentality of a lot of people here. I had a couple of West Indian ladies who had very high blood pressure and they're on cardiac problems and they are on Atenalol and Bendrofluazide,

153 *they wanted to buy sudafed. You can't. You can't take sudafed - you*
154 *say see your GP and if he prescribes it you're getting*
155 *prescriptions free anyway, if he prescribes it you're no need to*
156 *buy it. If you had to pay for it if he writes out a note and then*
157 *I'll happily give it to you.*

The pharmacists blame the pharmaceutical companies and advertising for this situation since they give the impression that the medicines which are available without a prescription are safe.

Communication skills

The answer to the problem of dealing with requests for medicines seems to be communication skills. The extract below once again describes the difficulty that the pharmacists have and suggests a solution for the difficulty, namely communication skills.

1298 ..... *So the customer then is non plussed. They have*
1299 *made the diagnosis at home or their husbands have made the*
1300 *diagnosis at home. And now they are completely non plussed or*
1301 *do you intercept and do you say Tagamet mmm that is pretty*
1302 *powerful stuff what is the problem? You are now, you*
1303 *have given them an open question they have got to reply*
1304 *because you started them off with one. Who is it for where is*
1305 *the problem etc. etc. You know the what why where and etc.....*

.....*So you are now intercepting and you*
1311 *intercept to the point of where you think that you are now*
1312 *Pharmaceutically competent to do the analysis and to do the*
1313 *prescribing and then you say in a conciliatory tone but not*
1314 *necessarily condescending you say to them OK I am willing*
1315 *to give you a remedy which would do the job it would be*
1316 *better for you than the one that you have picked but so that*
1317 *you don't lose face I will let you take the decision and you*
1318 *say to them my feeling about that thing is that I think*
1319 *Tagamet is probably too strong for what you want I think*
1320 *you'd be better off starting off with Gaviscon and if Gaviscon*
1321 *does the job, marvellous, you have got it in one. If Gaviscon*
1322 *doesn't do the job it is serious enough to pop along to the*
1323 *doctor so the patient is completely mollified they are warned*
1324 *they are satisfied they take the Gaviscon.*

Interestingly communication skills are suggested more of a way of dealing with these potentially confrontational situations as opposed to obtaining the right diagnosis from the person by listening to them.

Protocols for sale of medicines

The increase in the sale and requests for advice has implications on the workload of the pharmacist. A number of initiatives similar to those proposed for dispensing have been introduced to help the pharmacist in this role. These have mainly concerned the delegation of certain activities to pharmacy assistants, along with the introduction of formal training for the pharmacy assistant in treatment of minor ailments. In addition, protocols for the sale of medicines have been introduced. These are a set of questions to be answered before a product is sold to ensure the safety of the product. These developments are generally welcomed as long as they are used in an appropriate way i.e. the assistant will refer requests that they can not handle themselves and that the person buying the medicine is not upset. This was demonstrated by one pharmacist who stated that in an ideal world it would be nice to have a pharmacists on "the front counter" supervising and recommending treatments. However, he went on to say that most requests for sales of medicines could be handled by counter assistants just as appropriately as a pharmacist as long as the counter assistants had been trained on specific products and knew when to refer to the pharmacist. He also explained that there were some assistants that he supervised more than others and he made these assistants make him aware of the medicines that they were selling. It was also explained that there are certain things that counter assistants can't do such as dealing with requests for a recommendation of a medicine. In addition he stated that he had to take into account the fact that not everyone wanted to be questioned extensively about the medicines by a pharmacist and just wanted to purchase their medicines and go out. He explained that the protocols for the sale of medicines thus ensured appropriate sale of medicines in a quick manner.

Dealing with requests for recommendation of medicines

Similarly to the initiatives proposed for the dispensing procedure the recent initiatives of protocols and training of assistants are limited in freeing up pharmacists time and pharmacists still find themselves torn between a number of activities namely dispensing, recommendation of medicines and supervision of sales as shown earlier. Again this situation in which the pharmacist is in demand presents difficulties for pharmacists and how they deal with requests for advice and a recommendation for a product. In general they try and meet the patients' expectation but keep the time they spend talking with people to a minimum.

you can lengthen or restrict your consultation with the patient if you really want to get involved with them well yes you can give them a leaflet, you can give them this, that, sit them down look down their throats and give them and get them to give you a phlegm sample. You can take it as far as you want or just pick a product out and say here you are this is the best thing for a chesty cough you know I mean I don't do that but you know its something in between you have to you have to do it and you have to depend and its dependent on your time, you know, how much time you have got because there's no point in going into a deep lengthy conversation and advice and all that kind of business with somebody who just came in to say what's the best thing for this, when Emm you have got so many things to do, restrict yourself,

Two strategies that were used by the pharmacists to keep their consultations short, was by asking closed questions and finishing consultations by providing a product for the person to purchase.

.....It probably means that you have to use a slightly different tact on your questioning in that you have to be a little more incisive in looking for answers. You can't let them warble on with you know sort of how have you felt over the last couple of days? You know you'd actually have to you know I think you'd have to cut out that and actually ask them specific areas you know.

Pharmacists' perceived responsibility in OTC medicines.

The extension of the role of the pharmacist in this area also produces difficulties as to the definition of the role of the pharmacist. Whilst pharmacists feel liable for selling and recommending treatments. The extension of the role requires pharmacists to make diagnoses which some don't feel happy about doing. Also people will ask them for a confirmation of the doctors advice and even a second opinion. Whilst most pharmacists welcomed an extension of their role in this area, they qualified their response by saying that they did not want to do the job of a doctor.

60 *PHARM: .....And I think we're treading on rather thin ice because its virtually a medical problem isn't it which we're trying to assist in? We're almost being put in a position of making a diagnosis.*

61 **Q: Yes, yes. I mean do you make diagnosis on a daily basis?*

62 *PHARM: I suppose the answer to that has got to be no because I'm not qualified to make a diagnosis. Only a doctor can diagnose - is that right?*

The pharmacists seemed to make a distinction of their role in diagnosis by implying that it was only for minor conditions.

764 .....I quite enjoy
765 asking people questions in order that I get the right diagnosis
766 and emm that I suppose puts you in the realm of doctors in
767 diagnosis but I mean it is minor conditions, its minor conditions
768 that you know what they are and so long as you know where the
769 line comes where you have to refer on

Others made the distinction that what they were actually doing was differential diagnosis. In that they were making a decision to see if the person's condition was serious that they should see the doctor, or if it was a minor condition that would not be harmed by a recommendation from a pharmacist.

900 .....you are not
901 trying to make a diagnosis of what it is because I don't think I
902 am able to do that all of the time, once I have got rid of the fact
903 that I know there is no danger to the patient from me actually
904 treating them I then try and find a medication which will treat
905 their symptoms. Not the other way round not trying to find a
906 disease and then try and find the medication that will deal with
907 it.
*908 *Q: right so it is as we say responding to the symptoms.*

The pharmacists referred people to see their GP when they felt the condition was not a minor ailment or when they felt that they were not able to recommend a treatment. However, they were careful not to upset the doctor with any information that they gave to the person such as a diagnosis or a recommendations for a specific product to be prescribed.

167 My advice is see your GP or this is it it's
168 a prescription item only and maybe they GP may decide, but go and
169 have a word with the GP.....
.....- don't say the Pharmacist said
172 say a friend of yours has been using it because unfortunately GP's
173 get a bit upset when the Pharmacist tells a patient go and see your
174 GP and ask for it.

Summary

In summary there is considerable support for the extension of the role of the pharmacist in OTC medicines since this role gives the pharmacist job satisfaction and increases the business of the pharmacy. Thus there is support for the recent reclassification of a number of medicines. The increase in these activities present several difficulties for pharmacists. The main difficulty is dealing with the increase in the number of requests for recommendations for treatment and the supervision of sales of medicines. There is

support for the recent development of training for pharmacy assistants and the protocols for the sale of medicines. These developments are seen to reduce the workload of the pharmacist to a certain extent in that only requests that can not be dealt with are referred to the pharmacist. However pharmacists still felt that they needed to adjust their consultations to cope with the demand on their time.

There was mixed feeling concerning the advertisement of medicines. Although this raised awareness of the medicines and the indications that they can treat, it made the role of the pharmacist in recommendations redundant. People would come in and ask for a product by name, rather than ask for advice. In addition people would not expect to be questioned about the appropriateness of their medicines which is a requirement of the pharmacists' role in the supervision of the sale of the medicines. There was a feeling that the required questioning would upset the person. The answer to this would be better communication skills not so that they were better able to understand the person's condition but to be able to avoid possible confrontations.

One of the distinctions that was apparent between activities concerning OTC medicines compared with activities concerning dispensing of prescriptions was the importance of people's expectations of the pharmacists. In activities concerning OTC medicines people's expectations of the pharmacist seemed to have a greater influence. As already described pharmacists were very concerned not to upset the person when intervening on a sale.

The pharmacists seemed to be aware that an increased role in OTC medicines required them to make diagnosis and comment on diagnosis already made by a doctor. They qualified this by describing their activities as differential diagnosis. They were also aware that their opinions may be passed on to the local GPs and there was concern that this may produce a confrontation.

5.4.5 Extended services

Pharmacists' views of the proposed extended services were also investigated during the interviews. It was not intended to seek their opinions on specific services but rather to seek general views on the topic.

Support for the extended services

There was a mixed reception for the idea of extended services. They were seen as providing the pharmacists with a more professional role, one that brought them nearer to patients and closer to other members of the primary health care team, especially GPs as the extract below explains.

407 PHARM: well simply because it gives us more of a professional
408 role
*409 *Q: right*
410 Pharm: than it did before it means extra work but it Emm
*411 *Q: professional role in the sense that you are involved in*
412 the
413 Pharm: health care of the public
*414 *Q: right*
415 Pharm: when someone comes in and we do have their records. If
416 there is a query on a prescription one can always say from
417 your records that we hold which you know that we hold
418 you have had this before or
*419 *Q: right*
420 Pharm: has there been a change? which they know that you
421 would have spotted from a prescription and they quite
422 confidently think yes there has been a change in my
423 medication or no sorry there hasn't been a change and the
424 doctor was not there and there was only a locum doctor
425 and what have you which you case you can point it out to
426 the doctor and can be resolved which is a good thing and
427 plus your OTC medicines which they buy one knows what
428 they are taking which is a good check and yes basically it
429 does give our patients a bit more confidence yeah and then
430 residential homes yes it brings you closer to the patient
*431 *Q: right*
432 Pharm: to check their medication and whatever and perhaps in
433 the future we will be able to I mean we should be able to
434 do that now to have a say in the prescribing of some
435 medication for the elderly

This support was not universal amongst all pharmacists. In the extract below the pharmacist questions the source of the calls for the extended roles.

6 Pharm: What I'm interested to know exactly who exactly are the people who have made the reports and are they pharmacists, are they engaged in community pharmacy or hospital pharmacy or whatever. Or are they as so often seems to be the case people on the periphery you know people like University lecturers, or people you know other organisations who think they can see what's going on and make proposals and of course they themselves never have to carry them out.....

14 Pharm: Mmm, my question is how many of us need to have an extended role, lots of us feel pretty fully extended already doing the job we've

actually been trained to do. And if we're going to have an extended role what's it going to be, is it going to be funded in any way, will we have the time to do it, will we have the training, will the training be carried out in our own time or will it be as it were, an in service training, because I don't see much signs of this.

The pharmacist implies that the proposals are for an ideal world that does not exist. The pharmacists asked questions relating to the need for and the nature of the extended services to be implemented, the financing of the services, the training aspect of the services and the time required to carry out the services. All these points were connected in some way. The pharmacists felt that there was a need for money to be invested in the extended roles to enable the pharmacists to become adequately trained to carry out the extended role services. There was a need to provide and fund a second pharmacist to enable time to be spent on these activities. There was also a need to provide additional payments for the pharmacists to carry out the activities. There was considerable concern that the extended roles would be provided and financed from the remuneration provided for the dispensing activity. One pharmacist expressed this by saying the he was *"really fed up with doing something for nothing"* he went on to say that unless the remuneration system was changed, the financing and provision of extended services would be placed *"on top of a dispensing pharmacist's job"*. He also expressed concern that pharmacists might find themselves in a situation of having to provide these services free of charge to compete with other pharmacists so that they retain their dispensing business.

Experiences of involvement in extended roles

In relation to provision of new services through competition for prescriptions, three pharmacists who worked within the same vicinity provided the same example of the provision of an extended role service when interviewed independently. The service was the provision of compliance aids which the pharmacists, nurses and GPs all saw as a valuable service for people who were on a number of medicines and who might get confused and not take their medicines appropriately. However, one by one the pharmacists were forced to provide the service with no extra payments due to the threat of losing prescriptions. One pharmacist explained the situation:

229 .....patient packs, I never did that until about three
230 months ago I did a lot with the District Nurses from the Kingfisher surgery
231 and they said Pete will you do the tablets for these people I said
232 no - one I'm not in favour of them and they said okay. And
233 they've been going to Cunnings or Valerie's

234 *'Cause Valerie comes all the way down here to take patients.*
235 *And then after a while to keep good relations with the nurses then*
236 *you did more and more and I was given an ultimatum that either*
237 *you do them or we take all our things away, because they come here*
238 *for dressings etc and its a really good business. Either do that or*
239 *we take everything away.*

The extract above described how an extended service evolved in an unorganised manner and led to the disillusionment of the pharmacists. There were also several examples of pharmacists who had participated in organised extended services which also led to a feeling of disillusionment. This was mainly due to the lack of demand for the services. One pharmacist described a health promotion service aimed at reducing heart disease in his community by providing blood pressure monitoring, cardiac risk assessment and provision of advice on smoking cessation. Both the pharmacist and his senior assistants had taken time away from the pharmacy to attend two training sessions. The pharmacist had funded another pharmacist to provide locum services whilst he was away from the pharmacy. However, the uptake of the scheme from the public was very poor and the funding promised by the health authority had never materialised. Another pharmacist described an organised scheme in which he provided prescribing advice to a local medical practice. Again there were practicalities such as providing locum cover. The pharmacist was not convinced of the interest of the local GPs and although this extended service initially had limited success, the enthusiasm for the service had dwindled.

Once again the extended services provided confrontations with the local GPs. In the example of prescribing advice mentioned above the pharmacist stated that he felt that prescribing advice implies criticism of GPs' prescribing. The extract below describes a health promotion service in which the pharmacist took people's blood pressure. Again the associated advice that accompanied the service led to a confrontation with the local GP.

66 *PHARM: it stems from when we sort of some*
blood pressure tests that came in and the blood pressure was just
outrageous. And he was always on regular medication so I just asked him
when he last had his blood pressure checked and he said like three years
ago. Well he was on quite heavy doses of stuff anyway but obviously
wasn't controlling it and I said you know I think you ought to go down
and sort of have your blood pressure checked by him. It seemed rather way
out to me and I was a bit sort of concerned you know. He should really be
checking it on a regular basis. Specially with the sort of level of drugs

and that you're on but even so anybody whose on anything you should have it checked every six months I said if not every three months. And he was getting on a bit as well. ranting and raving. I mean he actually didn't ring me up but Ken came back and said I stood up for you he said he's going to kill you know and he's ranting and raving saying that stupid woman and all this that and the other. I said oh he's changed your prescription though hasn't he and he said yes. I said there you are then. I said I'm not bothered I said if he rings me up he rings me up I think he was in the wrong anyway so I'm not bothered. But he didn't actually ring me up. I was ready for him.

The examples above have described completely new extended services and the concerns that pharmacists have in implementing such services. There was much more support for services that pharmacists described as health promotion. To many pharmacists this was the case of providing additional advice and information as part of their every day activities. These activities were seen to add value to the pharmacists' service of responding to symptoms and dispensing of prescriptions.

732 .....He's just been given hid first
731 heart drug he doesn't know it really hasn't been explained to
732 him he hasn't been told what he has got what he is supposed
733 to do what ever. So you reach for the appropriate leaflet or
734 booklet and we have an excellent one on heart disease and
735 you go into the routine of telling them how to make sure that
736 he keeps his cholesterol as low as possible he makes sure that
737 he increases his exercise in competence with his age and
738 physical ability Emm what he should eat etc. etc. and all that
739 is joined together and when he goes out with twenty eight
740 Atenolol 50mg he has also gone out with a book that tells
741 him what he is supposed to do that to me is good pharmacy.

Summary

In summary there was more support for extended services which were associated with the pharmacists' existing activities rather than completely new services. Thus there was more support for the keeping of patient medication records, monitored dosage systems for people in the community and care homes and the provision of information leaflets and advice with their every day consultations. This was as opposed to services such as provision of prescribing advice to GPs and diagnostic testing. The issue of the financing of the services can not be avoided. This is connected to the training and time for training that is required for the pharmacists as well as the investment in the equipment and the time that the pharmacists may be away from the pharmacy. Not all of the pharmacists

were convinced of the benefits of the completely new extended services, in addition some of the newer services had the potential of disrupting the pharmacist-doctor relationship.

5.5 Analytical Themes

5.5.1 Introduction

In analysing the descriptive themes in the previous section several issues constantly came to the fore. These issues were the people's expectations, relationships with doctors, financial considerations, work practices and roles of pharmacists. These themes are introduced individually, however, since they are inter-related they can not be considered in isolation. Their significance and their relationship with each other are therefore detailed throughout the section below.

5.5.2 Financial considerations

Financial considerations were touched on by all the pharmacists. This theme was present in all the different areas that the discussions covered including every day activities as well as extended services. The finances of pharmacies come from the dispensing of prescriptions and the sale of goods. People are free to choose which pharmacy to have their prescriptions dispensed in and which pharmacy to purchase other goods such as medicines. Thus pharmacy is in a consumer environment. There is a great deal of emphasis placed on making sure that the person who comes into the pharmacy is satisfied with the use of the pharmacy. Pharmacists believe that this will ensure that they will use the pharmacy in the future as the extract below describes.

*1195 *Q: so what does your service consist of?*
1196 PHARM: making sure that when they walk out of the pharmacy feeling
1197 satisfied that they have got Emm that they have got what they wanted
1198 and if they came in for a prescription. I mean its all well hopefully
1199 more than what they have wanted. I mean if they have just come in for
1200 a prescription and they just want it dispensed, well yes I mean they
1201 walk out with it dispensed, but their expectations are different some
1202 just want it just want to go in and go out. Others want to go in and
1203 have chat and go out others want to go in you know more
1204 about their drugs they want to know more

Extended roles such as provision of advice are seen by some as adding value to their main dispensing service which hopefully people will appreciate and thus use the pharmacy in the future. However, some people just want to have their prescription dispensed as quickly as possible and pharmacists still have to meet these expectations.

5.5.3 People's expectations

The extract above shows that pharmacists perceive that different people have different expectations, whilst some want a quick service, others will want an in-depth discussion. A decision is made on an individual basis according to signs such as body language as to the expectation of the person.

This difficulty is addressed by adopting a working practice which ensures a quick service whilst at the same time ensuring that the pharmacist is available to be asked questions should the person require it. This applied to both dispensing and sale of medicines. The extract below demonstrates the points made.

1147 *Pharm: it all depends I mean if its a regular prescription that they have been having and there are no changes I don't necessarily feel that I have to counsel but I do tend to give the prescription out you know hello Mrs so and how are you today I won't actually directly counsel them but I am there and they know that I am the pharmacist and they can ask me any questions*

Differences were observed with the influence of people's expectations in the activities of dispensing and the sale of medicines. People's expectations had a greater influence on the sale of medicines. This was apparent in the earlier extracts in which the pharmacists had to be very careful not to upset the person when they had requested a medicine otherwise they would go to another pharmacy. Pharmacists were also careful not to upset people who had requested information on dispensed medicines, but the reason for their concern was that they would not take their medicines, rather than they would go elsewhere to have their medicines dispensed. This distinction was made apparent by the term that pharmacists used to refer to the people in the two activities. In the extract below the pharmacist is discussing the future of the pharmacist role in OTC medicines. He refers to people who bring a prescription to be dispensed as patients and indicates that in the future the people who ask for a medicines should also be treated as patients

as opposed to customers. These terms describe differences in the pharmacists' perceptions of their relationship with people in the different types of activities.

1159 ..... Back to our three, the person coming in
1160 through the door the patient, the customer, the client. They come
1161 into the dispensary, they are a patient because they are
1162 producing a piece of paper that says that they are a patient or
1163 their mother is, or their father is, or their son is, or they are. So
1164 they are a patient. Move that same patient to the front and she
1165 is buying nappies for her babies and she is a customer and
1166 then she decides to go down to the back shop she wants a
1167 new hair colour and she wants some advice so that it doesn't
1168 bleach out or it doesn't react with her skin she is a client see.
1169 Right say we don't have customers clients and patients say
1170 we only have patients and clients. When the customer
1171 that was the customer comes to the medicines counter, she is
1172 no longer, she is not a customer, she is a patient.

Pharmacists' perceptions of people's expectations therefore greatly influenced the activities and the way those activities were performed in the pharmacy as well as determining the priority given to those activities.

5.5.4 Work practices

In every day practice pharmacists are required to carry out a number of activities simultaneously. These include the dispensing of a prescription, the supervision of the sale of medicines, recommendations for treatment, extended services and management requirements of the pharmacy. Working practices have developed to free up pharmacists' time, to enable them to be more involved in the proposed activities. These include the delegation of certain activities such as the dispensing procedure and the sale of medicines to other pharmacy staff. Employment of staff capable of taking on delegated activities or training of staff again impacts on the finances of the pharmacy. However, pharmacists are generally happy to allow such delegation as long as they can control how much and what aspect is delegated. Thus these new developments impact on the definition of pharmacists' activities and although there was general support for delegation there was also concern expressed over the pharmacist becoming redundant with too much delegation.

626 ..... What is the purpose of the pharmacist? You see
627 everybody is trying to move so quick that the pharmacist should
628 have a dispenser who can do everything and spend more time out

629 there. Three months later we hear we've got pharmacist assistant
630 training course. So they can ask and then what does the pharmacist
631 do? Well seriously what does the pharmacist do? Our reason to be
632 here is to do all this,

Working practices such as the supervision of assistants in sales of medicines and the final check of dispensed medicines by a pharmacist therefore delineate between the roles of pharmacists and their assistants. Another working practice mentioned by all the pharmacists with the aim of rationalising the pharmacists' time, was to view regular prescriptions and regular requests for OTC medicines as ones which generally did not need any additional attention. This was apparent in the provision of information to patients in which the pharmacists said that they do not feel they have to counsel patients on repeat prescriptions. It was also the case with interventions on prescriptions in which pharmacists believed that people on repeat prescriptions which had drug interactions had been stabilised on the interactions and therefore there was no need to intervene. Similarly the first question asked in dealing with requests for medicines is *"have you had this before?"*. However, pharmacists did recognise the importance of provision of advice and although they did not volunteer advice in these situations they made sure they were available to deal with requests for advice.

Working practices are therefore important in not only freeing up pharmacists' time but also in determining pharmacists' perceptions of the importance of certain activities. On some occasions these perceptions are at odds with the recommendations for future roles of the pharmacists. For example one of the proposals is for pharmacists to monitor people who are on long term medication i.e. repeat prescriptions. However pharmacists view repeat medication as unproblematic.

5.5.5 Relationships with doctors

Relationships with local prescribers also impacts on the finances of the pharmacy. There was a feeling that GPs could influence where people go to have their medication dispensed and thus influence the finances of the pharmacy. Many of the pharmacists thus indicated that it was important to have good relationships with GPs.

668 .....if you don't get on with the surgery which
669 you know influences your livelihood to put it directly Emm then Emm
670 that will cause problems. If they totally disliked you, they could redirect

671 patients elsewhere to other pharmacies just out of spite and the
672 patients would probably adhere to that because its coming from the
673 doctor whose their doctor and they do what he says. So that would
674 affect you if not significantly if you were a very good Pharmacist
675 maybe it wouldn't affect you drastically nevertheless its going to take
676 business away from you you couldn't help the patient 100% if
677 you did then maybe you would be in breach of your contract or
678 subject to a complaint

Relationships with GPs were not just a matter of finances, but these relationships also influenced the ease with which pharmacists could carry out their activities. The pharmacists talked about situations in which they could help the patient by for example supplying a prescription only medicine in lieu of a prescription which would be supplied at a later date. They explained if they did not have a good relationship with the doctors they would not be able to help people in this way and if they did they may be subject to a complaint.

Pharmacists were therefore careful not to upset the relationships with the doctor. They recognised that some of the extended role activities may disrupt this relationship. This was again reflected in the extracts where pharmacists viewed their interventions on prescriptions as a criticism of the GP. There were working practices which reflected this concern. The pharmacists did not contact the GP unless it was absolutely necessary. They considered many of the drug interactions that they encountered as insignificant and made assumptions that the patient had been stabilised and thus the interaction had been accommodated for. The interventions that they made on prescriptions were therefore in situations where there was a major drug interaction or where there was an obvious intervention such as the dose and strength of the medicine. Working practices extended to the communication of their concerns to the GP in a non confrontational manner which left the GP to make the final decision. The extract below describes how a pharmacist would like his intervention on a prescription to be viewed by the prescriber.

634 .....you send the
635 prescription along to the doctor and say my records say this
636 should be Dothipen please change, he then says bloody hell
637 here is these people and they interfaces between me and the
638 patient and saving my bacon by dispensing the correct
639 medication for the mistake that I made, but they are not
640 blowing their trumpet and saying Yahoo Sucks to you I've
641 just found you making a mistake what they are saying is I
642 know that I am competent and confident and am professional

643 *pharmacist between me and the patient and if I do make a*
644 *mistake he is going to pick it up and you know full well when*
645 *we look back at patient records the number of times that we*
646 *do save patients not save patients lives because that is being*
647 *perhaps too dramatic about it but certainly keeping people on*
648 *the right straight and narrow*

In provision of information to patients, although pharmacists did not have direct contact with GPs, they were again concerned not to disrupt their relationships with GPs. They believed that too much information would lead the person receiving the medicine to question the GP's prescribing. This activity would disrupt the doctor patient relationship upset the doctor and thus also disrupt the relationship with the pharmacist. Working practices were adopted in which they did not have detailed discussions with people about their medication, but were available to respond should the person require the information. If information was requested, it was communicated in a way that did not worry the patient but made them aware of possible side effect and the actions that they would need to take if they experienced a side effect. Similar concern was expressed when people presented pharmacists with a series of symptoms and asked for a recommendation.

5.5.6 Defining the roles of Pharmacists

The extended activities that have been proposed for pharmacists generally require pharmacists to carry out activities beyond the definition of their roles and to what they consider as the role of the GP. The extract below expresses this point very clearly.

88 *PHARM: I don't know. Yes I mean one could easy make a facetious remark here and say well I really consider myself to be a cut above them in some ways. But no, no I don't. But I think maybe we could say yes we do actually know more about drugs than they do. Than we ought to. I think it seems to me that it might be a good idea if we as pharmacists were also qualified as doctors and that they as doctors were qualified as pharmacists.*

In the interviews the pharmacists would often make references to the role of the GP and the role of the pharmacist. For example in interventions concerning drug interactions the pharmacists implied that their role was one of informing the GP of the interaction and that it was for the GP to decide what to do about the interaction. In dealing with requests for treatments presented in the pharmacy, the pharmacists made

a distinction between their role and that of the GP by implying that they were dealing with minor ailments as opposed to major ailments and they were not making a diagnosis rather "responding to symptoms".

In addition to defining their roles compared to GPs, pharmacists also defined their roles as compared to pharmacy assistants. Thus they were happy to delegate activities as long as the pharmacist supervised the activities. Factors which were often mentioned in defining the different roles to the pharmacists themselves included regulations of pharmacy, training, if they could see a real benefit of their activity, public demand and payments.

Regulations in pharmacy include legislation, ethics and terms of pharmacists' contract with the health authority. In the interviews the pharmacists kept using phrases such as "you could get yourself into trouble" and some activities were considered as "dangerous". They referred to regulations such as the those mentioned above as well as some unwritten rules such as relationships with doctors, doctor-patient relationships and consumer behaviour. All these regulations were used by the pharmacists to define and justify the boundaries of their roles and thus their actions in certain situations.

Training was often mentioned in discussions relating to the delegation of activities to non pharmacy staff. It was felt that only pharmacists had the appropriate training to be responsible for the dispensing of a prescription. In discussions relating to the extended services many of the pharmacists indicated a need for training in these extended services. Thus training was used as a way of delineating existing and future roles of pharmacists.

Benefits of and the demand for services were considered important. Pharmacists were more willing to be involved in new roles and services which they felt benefited patients e.g. provision of compliance aids and information leaflets. Whilst they were less willing to be involved in new services and roles that they felt there was no demand for e.g. prescribing advice.

Payment of pharmacy services was frequently referred to by the pharmacists. This was very important for the survival of the pharmacy, however, it was also important in

defining the activities that were carried out as well as the priority given to the activities. Thus one pharmacist said *"its a bit boring counting tablets, we can do better than that. Yes maybe we can, but you know this is what we're paid for"*. Other pharmacists when talking about activities in the pharmacy implied the real work was in the dispensary where the prescriptions had to be dispensed. Currently there are no arrangements for the pharmacist to be involved in extended role activities and so pharmacists are less willing to be involved in these roles. They see these roles as extra and optional to their daily activities. The extra activities that seem to be justified to pharmacists are those that were closely associated with the dispensing activity and those which added value to this service eg provision of information leaflets and compliance aids.

5.5.7 Summary

The analysis described in this section represent the themes which were present in all of the discussions held with the pharmacists. These were often voiced or implied by the pharmacists as a way of justifying their actions, activities or perceptions.

One of the themes was the financial considerations of running the pharmacy. Finances are obviously important to the survival of all organisations including a pharmacy. This theme, however, was also very important in determining the relationships that pharmacists have with both people who come into the pharmacy and the doctors who prescribe medicines. The theme also influenced the working practices in the pharmacy in that pharmacists placed greater priority on the services that they were getting directly paid for. The risk of reducing the finances of the pharmacy by upsetting people who directly affect the finances also influenced the communications that pharmacists had. The lack of finances also placed a limit on the activities that pharmacists carried out. Thus due to lack of finances, extended services were not provided and tasks already carried out by pharmacists were not delegated. Thus finances also affected the roles of pharmacists.

The consumer environment of the pharmacy means that pharmacists place a great deal of importance on people's expectations. They have to ensure that these expectations are met otherwise the person will go to another pharmacy which will affect the finances of the pharmacy. Pharmacists have perceptions of people's expectations and this not only

influences the activities that they perform, but also the way that they carry out these activities. Pharmacists' perception is that people expect a fast service regardless of whether they have brought in a prescription to be dispensed or if they have requested an OTC medicine. Thus a fast service is given higher priority than the need for advice and the intervention of the pharmacist. This impacts on the activities of pharmacists who have to ensure that the dispensing and sale process is efficient rather than to provide pro-active advice. This is contrary to the proposed activities for pharmacists. The issue of a lack of demand for the extended services also limits their activities in such services.

Pharmacists are required to carry out a number of activities simultaneously, and this limits the time that they have to carry out the proposed activities. Working practices have been adopted to free up the pharmacists' time. These include viewing repeat prescriptions as requiring less attention and delegating some of their activities. These working practices therefore directly determine the activities that pharmacists perform. Thus they also influence the role of the pharmacist.

The proposed activities of pharmacists extend their traditional role to what the pharmacists themselves consider to be the traditional role of the GP. The pharmacists feel that GPs can directly affect the finances of the pharmacy by directing patients away from the pharmacy. However, GPs are also able to allow pharmacists to carry out certain activities in the interest of people. For these reasons pharmacists try to maintain their relationships with GPs. Working practices have developed to maintain this relationship. Pharmacists generally do not intervene on prescriptions unless they are well recognised interactions. They communicate their concerns to the GP in a non confrontational manner. In providing information to people on prescribed medicines, the pharmacists are careful not to provide too much information that could disrupt the doctor patient relationship, which would thus disrupt the pharmacist relationship with the doctor. With regard to the extended services such as prescribing support, the pharmacists feel that this may provide a confrontational situation with the GPs and thus they have reservations about providing such a service.

The pharmacists' perception of their own role is important since this influences the activities that are carried out. The factors which influence this role definition to the

pharmacists have already been alluded to above. These include regulations, training, evidence of benefit, demand and payments.

The purpose of the qualitative stage of this project was to inform the design of the questionnaire survey. The qualitative stage has not only described the context of the every day practice of pharmacists, but it has also uncovered taken for granted issues which impact on the proposed roles of pharmacists. The qualitative stage has also revealed issues and reasons which pharmacists use to account for their every day activities. The next section describes the incorporation of the themes described here into the questionnaire survey.

5.6 Questionnaire Development

5.6.1 Introduction

Chapter 4 provided a detailed description of some of the methods used in the questionnaire. The aim of this section is to presents the rational behind the survey and to present the incorporation of the themes described in the previous two sections into the questionnaire survey.

The influence of qualitative research methodology on this project has been described in chapter 4. The two most important factors to take account of in the design of the questionnaire are the definition of the questions and incorporation of social context. The questions were defined in the language that the pharmacists used and specified activities which have been proposed for pharmacists rather than using a vague term for the service.

Social context was incorporated into the survey in two ways. Firstly, every question was introduced to the respondents with a sentence which asked the pharmacists to place themselves in the context of their own pharmacy. In detailed questions about certain topics, social context becomes even more significant. In these questions, vignettes were constructed whose scenarios not only defined the initial context, but were varied to determine the effect of differing social context on the answers that were provided (See

chapter 4 for a discussion of the techniques used, see Appendix 5 for a copy of the questionnaire).

The literature review of the extended roles of pharmacists revealed that the proposals were for provision of completely new services as well as extension of existing activities. This was an important distinction in this project. It was therefore decided to investigate these two categories separately.

5.6.2 Extended services

5.6.2.1 Factors important in establishing extended services

The descriptive themes of the extended services uncovered many of the issues and considerations in establishing extended services. These included training, payments, time to carry out the services as well as a number of other issues.

A question was thus constructed which presented the pharmacists with a number of statements referring to the issues that were raised in the interviews. The pharmacists were then asked to rate the importance of these statements on a five point scale. Space was also provided for other issues that were not covered by the statements (see Appendix 5, question 9).

5.6.2.2 Quantifying involvement of pharmacists in extended services

It was important to quantify the involvement of pharmacists in extended services for two reasons. Firstly since the questionnaire would be sent out to a national sample of pharmacists, one would obtain a national picture of the involvement of pharmacists in extended services. Secondly, a measure of this type would allow the investigation of factors which influence involvement in extended services.

The extended services were categorised as health promotion services, prescribing advice services, provision of diagnostic testing, provision of compliance aids and needle exchange services. Space was also provided to allow the specification of other services that did not fall into the category (see Appendix 5, question 7).

A related question asked the pharmacists who had been involved in the organisation of the extended services. The options included, the pharmacists or the employing company, the local health authority, the local pharmaceutical committee, the National Pharmaceutical Association, a university, local GP surgery, pharmaceutical industry or other organisation. The purpose of this question was to determine the support for the proposed services amongst the different organisations (see Appendix 5, question 8).

5.6.2.3 The influence of training, payment and support of local doctors

The descriptive and analytical themes revealed the importance of training, payment as part of the terms of service of the pharmacists, and the support of the local doctors in establishment of extended services. It was decided to investigate the relative importance of each of these factors in influencing pharmacists to establish a number of different extended services. The extended services were defined in terms of the activities that would be required of the pharmacists. These activities are listed below:

- Advise patients of side-effects that might develop from their prescribed medication.
- Review and seek information from patients and doctors to identify drug-related problems.
- Ask patients and doctors about diagnosis and record the information on the patient medication records.
- Set up and run several health promotion campaigns through out the year.
- Provide compliance aids to encourage adherence with drug regimen.
- Manage people's request for repeat prescriptions. e.g. instead of having to go back to the doctor people come to you and you decide if they should carry on with their repeat prescription or if they should see the doctor.
- Collect and evaluate clinical parameters to determine the efficacy of the drug therapy and the patient's disease state e.g. record and collect blood pressure and peak flow readings.
- Recommend changes or modification of patients drug therapy to doctors so that the drug therapy maximises the patients treatment.
- Give talks to community groups on health related topics.
- Routinely meet up with local doctors to discuss drug related topics.
- Carry out blood pressure and blood glucose screening and monitoring for the public.
- Provide a minor illness clinic, in which people consult you on minor ailments.
- Domicilliary visits to patients at home to monitor compliance and progress with their drug therapy.

The investigation of the relative importance of training, payment and support from the local GPs was achieved by constructing a vignette with three scenarios (see Appendix 5, question 10).

Scenario 1. You are given what you consider an adequate training for the services **but no** additional payments.
Scenario 2. You are given adequate training **and** what you consider **adequate additional** payments.
Scenario 3. You are given adequate training and payments but the local doctors **are not in favour** of you providing the service.

The first scenario presents a situation in which the pharmacists had been trained, in the second scenario the pharmacists had been trained and had received what they considered as adequate payments as part of their terms of service. In the third scenario the pharmacists had received training, adequate additional payment as part of their terms of service, but did not have the support of the local doctors.

For each of the three different scenarios the pharmacists were asked to indicate their willingness to provide each of the different extended activities. The analysis of responses to this question are presented in chapter 6 (section 6.4.2).

5.6.3 Extension of existing activities

The extension of the existing activities consists of pro-active interventions on prescriptions, pro active provision of information on prescribed medicines and provision of pro-active advice where ever possible.

5.6.3.1 Quantifying interventions and provision of information

The descriptive analysis of the interviews revealed two types of interventions on prescriptions. Pharmacists reported that they intervened on prescriptions which produced significant drug interactions and on prescriptions where there was an obvious mistake such as dosage changes. It was decided to quantify and compare the pharmacists' interventions on the different types of prescriptions. The pharmacists were asked to estimate the number of times per week they intervened on prescriptions and contacted the doctor regarding the person's drug therapy. Such interventions are referred to as clinical interventions. The pharmacists were also asked to estimate the number of times per week they intervened on prescriptions and contacted the medical surgery regarding issues such as missing items, quantities and clarification of the prescription. These interventions are referred to as management interventions (see questions 17 and 18).

These measures were used to compare the frequency of the different types of interventions as well as to determine the factors predictive of the extent of the two types of interventions by more advanced analysis (see chapters 6 and 7).

A similar question was constructed in which the pharmacists were asked to estimate the number of times per day they provided information on prescription and non prescription medicines (see questions 20 and 21). Again these two measures were compared and were used to determine the factors predictive of the extent of the two activities.

5.6.3.2 Factors important in determining the extent of existing activities

The descriptive and analytical themes revealed a number of factors which were important in determining the emphasis of activities such as interventions on prescriptions and provision of information. These factors included people's expectations, working practices, relationships with doctors, relationship of people with doctors etc. They were represented as statements which were derived from the interviews. Below three examples of statements derived from interviews are presented. The final questionnaire contained over fifty statements (see questions 9, 13, 14, 19 and 22).

Example 1. Quote:

1043 Pharm: yeah you take a lot of the pressure away or making sure that
1044 you meet the patients expectations not necessary what is good
1045 for the patient but the patients expectations because if you don't
1046 come up to the patients expectations they are not going to come
1047 back.

Statement

- I have to make sure the people who come into the pharmacy are satisfied. If I don't they won't come back.

Example 2. Quote

899 Pharm: it all depends I mean if its a regular prescription that they have
900 been having and there are no changes I don't necessarily feel that I have to counsel

Statement

- Most people on repeat prescriptions need less advice than those on new prescriptions

Example 3. Quote

*1048 *Q: so what are those expectations.*
1049 PHARM: those expectations are that you I think in the majority of
1050 cases is that you fill that doctors prescription as quick as
1051 possible you know far too often you hear them saying is that
1052 going to be long well you know I will try and get it you as
1053 quick as possible because I have been an hour in the doctors
1054 waiting now they have seen the doctor probably for two minutes

Statement

- The majority of people just expect me to fill the doctors prescription as quickly as possible

5.6.3.4 Pro-active advice in context

The descriptive themes demonstrated the effect of work load on the pharmacists' activities. Pharmacists' activities were also influenced by their perceptions of people's expectations in the different activities. As demonstrated previously they also adopted working practices to cope with the demand on their time.

The effect of the workload of the pharmacists on the different types of interactions with people was investigated in 4 scenarios which varied the degree of how busy the pharmacist was as well as varying the types of interactions with people. The pharmacists were asked to consider each scenario and indicate on a five point scale, how likely they were to provide advice without being asked, in 5 different types of interactions with people (see question 11).

The pharmacists were asked to place themselves in the pharmacy that they normally work in and then to consider the following 4 scenarios:

Scenario 1.
It is a quiet period, there is no paper work to be done. Would you give advice to the following people, without being asked?

Scenario 2.
It is a very busy period, there is a long line of people in the shop waiting to speak to you. One of your assistants also seems to want to speak to you.

Scenario 3.
It is a very busy period, but now you have a large number of prescriptions to do and most people are waiting in the Pharmacy for their prescriptions.

Scenario 4.
It is a busy period but now the person you are dealing with seems to be in a rush to go.

The scenarios progressively made the pharmacist more busy. The nature of how busy pharmacists were was also varied. Scenario 2 and 3 vary in that they place different pressures on the pharmacist. In scenario 2 the pharmacist is busy in that a number of people want advice from him / her. In scenario 3 the pharmacist is busy because a number of people are waiting for the dispensing of their prescriptions and not for advice. Scenario 4 introduces the pressure of people's expectations on the different types of situations.

The types of interactions with people that are investigated in this question are presented below:

- Someone who asks for a product by name
- Someone who asks for a recommendation
- Someone who hands over a prescription which they have not had before
- Someone who hands over a repeat prescription which they have had lots of times before
- Someone you notice who has just picked up leaflets on losing weight and reducing blood pressure

The results of the analysis of this question are presented in chapter 6.

5.6.3.4 Interventions on prescriptions in context

The descriptive and analytical findings presented the importance of relationships with local doctors to pharmacists. This theme seemed to be important both in terms of provision of extended services and also in terms of intervention on prescriptions. A vignette was constructed which varied this relationship using 4 scenarios and explored the effect of the relationships on the likelihood of the pharmacist to intervene on different types of prescriptions (see question 12).

The pharmacists were asked to consider each of the scenarios presented below and to indicate on a five point scale, if they would intervene and contact the doctor when presented with certain prescriptions. The effect of workload which was explored earlier was taken into account in the scenarios and kept constant.

Scenario 1.
It is a quiet period, there is no paper work to be done ***and*** ***<u>you get on very well with the local doctor</u>*** *who has written the prescription. How willing are you to contact the doctor for the following prescriptions?*

Scenario 2.
It is a quiet period, but this time the prescription is ***<u>written by a doctor whom you do not know</u>****.*

Scenario 3.
It is a quiet period, but this time the prescription is written by ***<u>the senior partner of the local practice,</u>*** *whom you have had several disagreements with..*

Scenario 4.
It is a quiet period, the prescription is issued by the local practice but now ***<u>the person who has brought in the prescription seems to be in a rush to go.</u>***

The different types of prescriptions which require an intervention by the pharmacists are presented below:

- A repeat prescription without a signature
- A non-addict prescription for a controlled drug without a signature
- A repeat prescription which produces a <u>minor</u> drug interaction on the computer
- A new prescription which produces a <u>major</u> drug interaction on the computer
- A prescription for an outmoded drug therapy to which there is a better alternative

These prescriptions require interventions either increasingly on a legal basis or increasingly on a clinical basis. The results of the analysis of this vignette are presented in chapter 6.

5.6.3.5 Independent decisions regarding the issue of prescriptions

One of the main analytical themes was how pharmacists defined their role. It was demonstrated that this theme affects the activities that pharmacists perform and the extent of involvement in the suggested services. One of the suggested roles for pharmacists is to make independent decisions regarding specific drug therapy once a diagnosis has been made or once a general treatment is suggested. Although such a role has not been implemented to any extent in practice, there are situations that arise in which pharmacists have to make independent decisions regarding drug therapy. In the interviews pharmacists described a number of such situations. There were examples in which the pharmacists talked about changing dosages on medicines without contacting

the doctor e.g. changing dosages of four times a day on a prescription for Amoxycillin to three times a day; amendments to whole drug therapy regimens eg helicobacter eradication therapy; finally there were situations in which pharmacists not only made adjustments to dosages but substituted a different product entirely. The considerations that pharmacists described in these situations were very interesting and mainly included factors detailed in the analytical themes. One of these situations arose during one of the interviews that was carried out on a Sunday afternoon. In the extract below the pharmacist describes the situation and his reflections on the situation:

481 PHARM: the Insulin today
*482 *Q: what was it?*
483 PHARM: it was Emm prescription for something for an Insulatrad product
484 Insulin product which no one which was not available at all in
485 community and the patient had been round to many pharmacies and
486 came to this one and as a last resort and I was inclined to give him, I
487 gave him a product which was at the end of the day hopefully
488 matched the original prescription but was not the product that the
489 prescription called for but that benefited the patient
*490 *Q: how did you feel when you did that?*
491 PHARM: well you think to yourself if this goes wrong its going to come back
492 on me, but if I don't do it I'm going to feel bad in myself about it and
493 Emm and you feel frustrated that there's nothing you know wish
494 there was something you could do, wish there was someone you
495 could talk to, like I mean I phoned you up, you know, and Emm if you
496 didn't have that kind of a thing its very difficult so that highlights
497 things quite well you know

The extent of how far pharmacists were willing to intervene independently on a prescription was investigated using a general vignette described below (see question 23). Certain elements considered important within the vignette were varied using six different scenarios. There are no specific guidelines for action in these situations and thus pharmacists' accompanying comments are considered very important.

General vignette. *It is 4.30 p.m. on Saturday afternoon, a patient comes in with a prescription for a branded antibiotic. The patient explains that* ***all other pharmacies in the vicinity have been contacted by phone and none of them stock this brand****. The patient has not taken the medicine before and needs to take the medicine that day.* ***You are satisfied that the request is genuine and that the patient needs to take the medicine immediately.***

I) On checking you find that you do not have the brand in stock either. ***You do have the generic alternative in stock****.*

II) The same general scenario, but this time ***you do not have the generic equivalent in stock either, but you do have a very similar antibiotic****, in the same class as the prescribed antibiotic with the same spectrum of action, there is no difference in the cost of the two antibiotics.*

III) The same situation as in II), but the prescription is ***written by a doctor whom you get on with very well and who has approved of this type of substitution in the past****.*

IV) The same situation as in II), but the prescription is ***written by a doctor whom you have had several disagreements with in the past****.*

V) The same situation as in II), you try and call the doctor, but there are ***no doctors on the premises****.*

VI) The same situation as in II), but the alternative antibiotic is ***£10 more expensive*** *than the prescribed antibiotic.*

Scenario 1 placed the pharmacist in a situation where the branded antibiotic could be substituted for its generic equivalent antibiotic. Scenario 2, however, placed the pharmacist in a situation where the branded antibiotic could be substituted for an equivalent but different branded antibiotic. Scenario 3 and 4, introduced the relationship with the prescriber. In scenario 5, the pharmacists were placed in a situation in which they had tried to contact the local doctors, however, they were unable to contact the local doctors and they had to make a decision themselves. Scenario 6, introduced the concept of the cost of the equivalent branded antibiotic.

The pharmacists were presented with a choice of possible actions as well as an opportunity to explain their reasons or to give other actions.

Possible actions:

- **Dispense the alternative medicine, without telling the patient**
- **Explain the situation to the patient and then dispense the alternative medicine, if he / she agrees**
- **Try to contact the doctor, then substitute the alternative medicine, if he / she agrees to amend the prescription**
- **Tell the patient that the prescription must be obtained from another pharmacy**
- **Offer to order the branded medicine for the following Monday**

The results of this vignette are presented in chapter 6.

5.6.4 Attributes of pharmacists

The questionnaire also included a number of questions on the attributes of pharmacists (see questions 1-6 and 24-36). These attributes have been used in other surveys of pharmacists and it was felt that they should be included to allow investigation of their relative effects on the outcome measures of interventions on prescriptions, provision of advice and involvement in extended services.

5.6.5 Summary

The section has introduced the rationale behind the design of the questionnaire. The questionnaire investigated influences on the provision of extended services as well as influences on the extension of existing activities. As far as was possible the design of the questionnaire tried to incorporate the context of the pharmacists' work which was shown to be important in the descriptive analysis of the interviews. This was achieved by using vignettes. The range of scenarios within the vignettes tried to investigate the issues from the analytical themes. The findings from the qualitative stage of the project were also incorporated in to the questionnaire by the construction of statements derived directly from the interviews.

The influence of the qualitative stage in the design of the questionnaire is further demonstrated in the final vignette which investigated the pharmacists' willingness to make independent decisions regarding the issue of prescriptions.

5.7 SUMMARY AND DISCUSSION

This chapter has described the qualitative analysis that was used in this investigation. Face to face, un-structured interviews were tape recorded and transcribed into text. The aim of the analysis was to highlight issues that should be incorporated into the design of the questionnaire survey. The analysis of the interviews were facilitated by using the NUDIST computer program. This program helped to organise the data. Many codes were generated, and those that related to the work of the pharmacists were analysed in particular detail.

The initial findings were referred to as descriptive themes in that they presented issues that were considered important in the pharmacists' everyday activities such as: the nature of their work which was unpredictable, requiring juggling of activities and pharmacists' personal involvement; Dispensing of prescriptions; sale of medicines; and provision of extended services.

Several underlying themes were ever present in the majority of the interviews and came to the fore following the descriptive analysis. These themes were related to each other and were referred to as analytical themes since they helped to explain some of the issues presented in the descriptive themes. The analytical themes included, financial considerations, people's expectations, work practices, relationships with doctors and definition of the role of the pharmacist.

The descriptive and analytical themes were incorporated into the design of the questionnaire in a number of ways. The use of vignettes defined the situation in which pharmacists were working, whilst the several scenarios varied different factors to determine the effects of these factors on the pharmacists' answers. Thus the definition of the situation tried to incorporate the descriptive themes, whilst the scenarios varied the analytical themes.

Chapter 6 presents the descriptive statistics of the results of the questionnaire and chapter 7 presents more advanced statistical analysis of the questionnaire.

CHAPTER 6 SUMMARY OF FINDINGS FROM THE QUESTIONNAIRE

6.1 Introduction

The aim of this chapter is to introduce and summarise the initial findings from the questionnaire before more advanced analysis is presented in chapter 7. This chapter therefore presents the response rate to the questionnaire, the demographic details of the sample, a comparison of the responders and the non-responders and summaries of the attributes and attitudes of the pharmacists.

6.2 Response rate

The final response rate to the survey was 58.2% (see Table 13). A randomly selected sample of 1000 full-time community pharmacists from the register of pharmacists was requested from the Royal Pharmaceutical Society of Great Britain. Covering letters and questionnaires were posted to the addresses supplied. The initial mailing of the questionnaire produced a total of 330 eligible replies. After a six week period a reminder letter and a copy of the questionnaire were sent to those pharmacists who had not replied. The reminder generated another 94 eligible replies. After a four week period a second reminder letter was sent to those pharmacists who had not replied and resulted in an additional 33 eligible replies.

In an effort to increase the number of responders, telephone numbers for non responders were sought from residential telephone directories located in the Bristol Central Library. After another four week period a telephone call was made to all non-respondents for whom a telephone number was available. This generated an additional 10 replies, making the total number of replies 467.

The telephone calls, however, raised concerns regarding the original sampling frame. There were many cases (96) where the pharmacists or their representatives reported that they had not completed the questionnaire because they were not eligible. In addition there were many cases (18) where the pharmacists could no longer be contacted at the telephone number corresponding to the registered address. That is either the telephone number was not registered or the person answering the telephone indicated that the person no longer lived at that address.

The criterion of eligibility was that the pharmacists worked full-time in community pharmacy. A request had been made for a randomly selected sample of 1000 full-time community pharmacists. The sample that was supplied, however, contained many retired pharmacists or those who worked only occasionally. On investigation, it was confirmed that the original sample provided by the RPSGB was taken from the register of all community pharmacists regardless of the extent of their practice.

To investigate the number of full time pharmacists in the original sample, a list of all 15,696 full time pharmacists and those who worked more than 13 weeks per year was supplied by the RPSGB. This list was provided on a computer disk and transferred into a data-base which allowed easier investigation. The list was then investigated to see if it contained the names of the 1000 pharmacists in the original sample. It was found that 223 of the 1000 pharmacists in the original sample did not appear on the list. 25 of these pharmacists had completed the questionnaire in full. Excluding these responses gave a total of 442 eligible responses. The sample size taking into account the ineligible pharmacists and those who could not be contacted at the registered addresses became 759. The final response rate therefore became 58.2%.

Table 13 Response rate after each mailing.

	Initial mailing	First reminder	Second reminder	Telephone call	Investigation using list of full-time pharmacists and those working more than 13 weeks per year
Eligible replies	330	424	457	467	442
Not in practice / retired / deceased	30	62	75	96	223
Wrong address / gone away	7	6	-	8	18
Sample size	963	932	925	894	759
Response rate	34.3%	45.5%	49.4%	52.2%	58.2%

6.2.1 Discussion

In summary a random list of full-time community pharmacists was requested from the RPSGB. The follow up telephone calls revealed that the original sample supplied was drawn from a list of community pharmacists regardless of the extent of their practice. A list of all community pharmacists working more than 13 weeks per year was examined to see if it contained the names in the original sample. A large number (223) of names in the original sample did not appear on this list. These names were excluded from the original sample, thus increasing the response rate. The telephone calls also cast doubts on the accuracy of the data, since there were many pharmacists who indicated that they were no longer in practice and yet they appeared on the list of pharmacists working more than 13 weeks per year. These inaccuracies stem from the purpose of the list which is maintained to ensure the proper collection of professional fees. Thus it was not possible to obtain a list of pharmacists working 40 hours per week only, the list that was offered contained pharmacists who worked for more than 13 weeks per year (a reduced professional fee is collected from pharmacist who work for less than 13 weeks per year, but full professional fees are paid by full time pharmacists and those who work for more than 13 weeks).

This problem has not been previously reported by other pharmacy practice researchers, however, other studies have used the register of pharmacy premises in preference to the register of pharmacists possibly to avoid the experiences described above. This

problem may be common to other professional data bases and researchers must be aware of inaccuracies in such data bases.

6.3 Representiveness of the responders

As well as response rates, comparisons of the known demography of community pharmacists with the sample and, comparisons between responders and non-responders can give an indication as to how representative the data are from the survey.

6.3.1 Comparison of responders and the population of community pharmacists

6.3.1.1 Employment status

The strategy of sampling using the register of pharmacists seemed to be justified in that the employment status of the responders more closely matched the estimated national picture than previous studies (see chapter 4)[205-207]. Of the 442 respondents, 24.7% were either proprietors or directors of the pharmacy, 64.7% of the respondents were either full-time employees or regular locums of the pharmacy, 7.0% of the respondents were locums with no attachment to a particular pharmacy and 3.6% were pharmacists who described their job title as consultant pharmacists, pharmaceutical advisors, in charge of training or purchasing.

6.3.1.2 Age

The distribution of the age of the responders is very similar to the data available on community pharmacists on a national level from 1992 to 1994[333,334] (see Table 14) . The only two categories where immediate differences are seen are the ages under 25 years and 70 years and over. There are fewer responders in the under 25 years group and fewer responders in the 70 years and over group. Those in the 70 year and above group may no longer be practising in pharmacy whilst still remaining registered. This was evident from some of the returned questionnaires and the follow up telephone call. Those under 25 may have felt that the questionnaire was not applicable to them, since they may have little influence in implementing certain services. The telephone follow

up of non-responders also showed that this group of pharmacists were often not present at the telephone number corresponding to their registered address. This means these pharmacists may not have received the questionnaire, hence their under representation in the respondent group.

Table 14 Percentage of community pharmacists on the register by age from 1992-1994 and the percentage of respondents in the survey by age.

	Percentage of community pharmacists on the register of RPSGB			Percentage of responders (n=435)*
	1992	1993	1994	
Under 25	6	6	6	3.0
25-29	15	14	14	12.6
30-34	15	15	15	14.7
35-39	14	15	15	14.9
40-44	10	11	11	12.6
45-49	9	9	9	11.0
50-54	9	8	8	11.0
55-59	9	10	9	8.3
60-64	6	6	6	8.5
65-69	3	3	3	2.3
70 and over	5	4	4	0.9

* 7 pharmacists did not indicate their age.

6.3.1.3 Gender

Male pharmacists represented 49.5% of the responders and female pharmacists represented 50.5% of the responders. This compares to 50% male and 50% female pharmacists reported in the community pharmacy workforce[206,207].

6.3.1.4 Health Region

The sample was allocated to various health regions according to their post codes. Response rates according to health regions were therefore calculated. Response rates varied according to the health region that the pharmacists lived in. Table 15 below shows that the response rates ranged from 71.9% in the South and West region to 41.7% in the North Thames region.

Table 15 Response rate of the sample in relation to the regional health authority in which the respondents live

	Number of responses	Number in the total sample	Percentage response
South and West	69	96	71.9%
Wales	31	44	70.5%
West Midlands	38	64	59.4%
Trent	44	88	50.0%
Northwest	70	119	58.8%
Northern and Yorkshire	56	89	62.9%
Anglia and Oxford	34	54	63.0%
North Thames	50	120	41.7%
South Thames	49	85	57.6%
Total	442	759	58.2%

6.3.2 Comparison of responders and non-responders

6.3.2.1 Non-responders

The data for non-responders are available from three sources. First, there is a limited amount of information available from the published register of the pharmaceutical society. This information includes the home address of the pharmacists and the year of registration. The home address of the pharmacists in the sample were categorised according to their location within regional health authorities. The number of years since registration was calculated and categorised using the data available from the year of registration.

The second source of information on non-responders was from the reminder letters following the initial mailing of the questionnaire which asked pharmacists who did not wish to complete the questionnaire in full, to simply fill in the first and back pages of the questionnaire. 77 pharmacists returned the questionnaire with the first and last pages completed only. Thirteen of these pharmacists, however indicated that they only worked occasionally. This meant that 64 non-responders were eligible for comparison with the responders.

The third source of information on non-responders was the telephone follow up. All non-responders for whom a telephone number was available, 151, were contacted on at least one occasion. In 72 cases the pharmacist to whom the questionnaire was sent was

not available. In 77 cases the pharmacist was contacted. 25 of the pharmacists claimed not to be working in community pharmacy. 10 did not want to participate. In 8 cases the telephone number was either not recognised or the pharmacist could no longer be contacted at that telephone number. 10 pharmacists completed and returned their questionnaire. 25 of the pharmacists were willing to answer questions relating to the first and last pages of the questionnaire.

There is therefore limited information available on 317 non-responders and more detailed information available on 89 non-responders. Despite the efforts of gaining more detailed information on non-responders, those who volunteered information were themselves self-selected. Thus the information obtained can not be claimed to be representative of all those who did not complete the survey. The comparison between the two groups, however, provides an indication of the representative nature of the findings from the survey.

6.3.2.2 Statistical Comparisons

There was no significant difference (χ^2=17.62, df=10, p=0.06) between the responders and non-responders in the number of years since registration (see Table 16).

Table 16 Percentage of responders and non-responders and the number of years since registration.

	Responders n=440	Non-responders n=316, data source: register of pharmacists
Under 5 years	12.0	8.2
6-10 years	13.4	15.5
11-15 years	13.2	21.8
16-20 years	15.0	16.5
21-25 years	12.5	11.7
26-30 years	10.7	8.9
31-35 years	6.8	7.3
36-40 years	10.7	6.6
41-45 years	4.1	2.5
46-50 years	0.9	0.6
51 years and over	0.7	0.3

Responders and non-responders, for whom there is more detailed information available, were similarly distributed throughout the regional health authorities (χ^2= 10.5, df=8, p= 0.23) (see Table 17).

Table 17 Proportion of responders and non-responders within each regional health authority.

	Percentage of responders n=442	Percentage of non-responders n=89, (data source: incomplete survey and telephone follow up)
South and West	15.6	6.5
Wales	7.0	3.9
West Midlands	8.6	5.2
Trent	10.0	15.6
Northwest	15.8	19.5
Northern and Yorkshire	12.7	13.0
Anglia and Oxford	7.7	10.4
North Thames	11.5	16.9
South Thames	11.1	9.1

The responders and non-responders for whom there was more detailed information available were compared on a number of attributes. The chi-square test was used to assess whether there were statistically significant differences between the responders and the non-responders. Table 18 describes the variables and presents the results of the chi-square tests.

The individual chi-square tests revealed significant differences between responders and non-responders in the variables:

- description of clients (local residents, people who work in the area, town centre shoppers, a mixture of people);
- location of the pharmacy (town \ city centre, inner city, suburban, rural and out of town shopping centre);
- employment status (proprietor, employee, regular locum, other);
- workload in terms of OTC sales (very busy, busy, average, quiet and very quiet);
- workload in terms of dispensing (very busy, busy, average, quiet and very quiet).

A further logistic regression analysis was carried out to investigate the confounding effects of the variables on each other. The multiple logistic regression analysis, however, revealed the only two significant differences between responders and non-responders to be:

- employment status and;
- description of people who come into the pharmacy.

Table 19 below shows the odds ratios of responding to the questionnaire for each category of employment status and description of clientele of the pharmacy.

Table 18 Comparison of responders(n=442) and non-responders (n=89) on a number of attributes

Attribute	Description of categories	Significance and p values
Age	Responses were categorised into incremental 5 year age groups	Not significant, χ^2=11.04, df=10, p=0.35
Gender	Male and female.	Not significant, χ^2=0.72 df=1, p=0.39
Pre-registration training	Hospital, community, split with industry or community and hospital.	Not significant, χ^2=0.99, df=3, p=0.80
Description of clients	Mainly local residents, mainly people who work in area, mainly town centre shoppers, A mixture of people	**Significant, χ^2=20.22, df=3, p<0.05**
Socio-economic class of clients.	Mainly working class, mainly middle class, mixed middle and working class.	Not significant, χ^2=2.42, df=2, p=0.30
Number of full-time pharmacists.	One, two, three and four or more pharmacists working in the pharmacy	Not significant, χ^2=0.62, df=31, p=0.89
Type of pharmacy company.	Independent, small multiple with less than 5 branches, multiple with 6-20 branches, multiple with 21-100 branches and a large multiple with over 100 branches, I work in more than one pharmacy, I work in an office.	Not significant, χ^2=3.40, df=6, p=0.76
Employment status	Proprietor /director, employee or regular locum, locum, other.	**Significant, χ^2=17.17, df=3, p<0.05**
The location of the pharmacy.	Town/city centre, inner city, suburban, rural and out of town shopping centre.	**Significant, χ^2=17.48, df=5, p<0.05**
Workload in terms of dispensing.	These were subjective assessments of busy, very busy, average, quiet and very quiet.	**Significant χ^2=10.67, df=4, p<0.05**
Workload in terms of OTC sales.	These were subjective assessments of busy, very busy, average, quiet and very quiet.	**Significant, χ^2=10.02, df=4, p<0.05**

Table 19 Differences between likelihood of responding to the questionnaire according to employment status and description of clientele.

Variable	Categories	Odds ratio	Overall p value	Confidence intervals
Employment status				
			p=0.01	
	Proprietor / director	1.00		
	Employee	12.88		1.89 to 87.49
	Locum	0.26		0.03 to 2.16
Description of clientele				
			p=0.015	
	Mainly local residents	1.00		
	Mainly people who work but don't live in the area	0.0001		0.00 to 0.06
	Mainly town centre shoppers	0.0023		0.00 to 0.12
	A mixture of people	0.21		0.02 to 1.47

It can be seen that locum pharmacists were least likely to respond to the questionnaire. Employee pharmacists were the most likely to respond, followed by proprietor pharmacists and other category pharmacists. Pharmacists least likely to respond are those describing their clientele as people who work but don't live in the area, followed by those describing their clientele as town centre shoppers. Those describing their clientele as local residents were most likely to respond to the questionnaire, followed by those whose clientele were a mixture of people.

6.3.3 Summary

This section has described the experience of using the register of pharmacists as opposed to the register of pharmacy premises. It has presented the response rate to the survey. The representiveness of the responders has been judged by first comparing this group with known demographic details of community pharmacists and secondly by comparisons with non-responders. It was found that the characteristics of the responders to the questionnaire were not significantly different to the known characteristics of community pharmacists as a whole. Attempts were also made to gather information on non-responders with some success. Characteristics of responders and non-responders were then compared across a number of categories. The only two significant variables were those of employment status and nature of the clientele of the pharmacy. Thus although small differences do exist between responders and non-

responders on the whole the responders seem to be representative of the population of community pharmacists.

6.4 Initial analysis of the questionnaire

This section first describes the attributes of the pharmacists who completed the questionnaire. The section then presents the relationships between each of these factors which shed further light on the nature of community pharmacy. The section then introduces each of the issues investigated in the questionnaire and summarises the responses. Finally a summary and discussion of the descriptive findings are presented.

6.4.1 Attributes of pharmacists

The attributes, the response categories and summaries of the frequencies are listed in Table 20 below.

Equal proportions of male and females responded to the questionnaire. The age of the pharmacists ranged from 23 to 78 years, the mean being 42.8 years. Most of the pharmacists in the sample carried out their pre-registration training in the community setting. The number of years since their qualification ranged from 6 months to 55 years (mean = 19.7 years). The average number of years in their present job was 10.4 years. Seventy eight percent of the pharmacists reported completing at least one hour of continuing education in the last 3 months. Forty three percent had attended at least one pharmacy meeting in the last 3 months. Fifteen percent of the pharmacists are committee members of a pharmacy organisation.

The majority of the pharmacists in the sample (64.7%) are employee pharmacists. Twenty four percent of the sample are proprietors, directors or partners of the pharmacy that they work in and 7.0% are locum pharmacists. The majority (56.1%) work for multiple pharmacy companies, 58% of these pharmacists work for companies with over 100 branches. Thirty six percent of the pharmacists work for independent companies. The location of the pharmacies varies, with 37.4% being in suburban areas, 25.7% being located in city or town centres and almost 16% being located in each of residential inner-city and rural areas. Out of town shopping centres account for 5.2% of

the locations. There are on average 2 other pharmacies within half a mile of the pharmacy that the pharmacists work in. On average the prescriptions dispensed from the pharmacies come from 4 practices. Fifty six percent of the pharmacists reported meeting most of the GPs from these practices, with 35.6% of the pharmacists reporting having met one or two of them. The majority of the pharmacists (83.5%) reported knowing the local GPs only in relation to work.

The clientele of the pharmacies where the pharmacists work are generally local residents (73.3%), or a mixture of town centre shoppers and local residents (22.2%). Thirty three percent of the pharmacists reported that the majority of the clientele of the pharmacy that they work in were from a working class background, 16.3% reported that their clientele were middle class. The majority of the pharmacists (50.2%) reported that their clientele were from both the middle and working classes. Most of the pharmacists describe their workload as busy or very busy both in terms of OTC sales (45.5%) and prescription medication (52.9%). The majority of the pharmacies (85.0%) have one full-time pharmacist, 15.0% have two or more full-time pharmacists. One part-time pharmacist is employed by 28.5% of the pharmacies and 19.9% employ two part-time pharmacists. Pre-registration students are present in 14% of the pharmacies. There are no qualified pharmacy technicians in 60% of the pharmacies. Full-time qualified pharmacy technicians are present in 33.7% of the pharmacies. Part-time qualified pharmacy technicians are present in 16.8% of the pharmacies. Non qualified dispensary staff, however, are present in 51.4% of the pharmacies, mainly on a full-time basis. Most of the pharmacies reported having at least one full-time non-dispensary staff and 2 part time non-dispensary staff.

Table 20 Pharmacists' attributes, response categories and summaries of responses.

Variable name	Description	Response categories	Total	Summary of the responses
pre-reg.	Where pre-registration took place	Hospital, Community, Industry and Community, Industry and Hospital, Community and Hospital, Other	n=442	Hospital 22.2%; Community 70.8%; Ind/com or ind/hosp 3.4%; Community and Hospital 3.6%.
people	Type of people who come into the pharmacy	Mainly local residents, Mainly people who work but don't live in the area, Mainly town centre shoppers	n=442	Mainly local residents 73.3%; People who work but don't live in the area 0.5%; Town centre shoppers 4.1%; A mixture of people 22.2%.
socio	Socio-economic class of majority of clients	Mainly working class, Mainly middle class, Mixed, middle and working class	n=442	Mainly working class 33.5%; Mainly Middle class 16.3%; Mixed, middle and working class 50.2%.
pharmnum	number of pharmacists employed	State number	n=415	One pharmacist 43.6%; two pharmacists 35.9%; three pharmacists 9.9%; 4 or more pharmacists 10.6%
pharmft	number of full-time pharmacists	State number	n=360	One pharmacist 85.0%; two pharmacists 15.0%
pharmpt	number of part-time pharmacists	State number	n=442	One pharmacist 28.5%; two pharmacists 19.9%; no pharmacists 51.6%.
prenumb	number of pre-registration students employed	State number	n=442	One pre-registration student 13.6%; two pre-registration students 0.2%; no pre-registration students 86.2%
preft	number of full-time pre-registration students	State number	n=442	One pre-registration student 14.0%; two pre-registration students 0.2%; no pre-registration students 85.7%

Table 20 continued

Variable name	Description	Response categories	Total	Summary of the responses
prept	number of part-time pre-registration students	State number	n=442	One pre-registration student 0.9%, no pre-registration students 99.1%
qualnumb	number of qualified dispensing technicians	State number	n=442	One qualified technician 23.3%; Two qualified technicians 8.1%; three qualified technicians 3.8%; four qualified technicians 4.3%; no qualified technicians 60.4%
qualft	number of full-time dispensing technicians	State number	n=442	One qualified technician 22.6%; Two qualified technicians 6.8%; three or more qualified technicians 4.3%; no qualified technicians 66.3%
qualpt	number of part-time dispensing technicians	State number	n=442	One qualified technician 10.0%; Two qualified technicians 5.0%; three or more qualified technicians 1.8%; no qualified technicians 83.3%
noqulnum	number of non qualified dispensary staff	State number	n=442	One non-qualified staff 24.7%; two non-qualified staff 13.8%; three non-qualified staff 7.7%; four or more non-qualified staff 5.1%; no non-qualified staff 48.6%
noqulft	number of full-time non-qualified disp. staff	State number	n=442	One non-qualified staff 26.0%; two non-qualified staff 7.0%; three non-qualified staff 0.9%; four or more non-qualified staff 1.4%; no non-qualified staff 64.7%

Table 20 continued

Variable name	Description	Response categories	Total	Summary of the responses
noqulpt	number of part-time non-qualified disp. staff	State number	n=442	One non-qualified staff 19.0%; two non-qualified staff 12.0%; three non-qualified staff 2.7%; four or more non-qualified staff 2.3%; no non-qualified staff 64.0%
ndispnum	number of non-dispensary staff	State number	n=467	Most pharmacies had 3 non dispensary staff. the range was from 1 to 200
ndispft	number of full-time non-dispensary staff	State number	n=223	Most pharmacies had 1 full-time non-dispensary staff. The range was from 1 to 50
ndisppt	number of part-time non-dispensary staff	State number	n=351	Most pharmacies had 2 part-time non-dispensary staff. The range was from 1 to 70.
age	age of pharmacist	State age	n=435	The mean age of the pharmacists was 42.86 years. The range being from 23 to 78 years.
gender	gender	Male, Female	n=442	Male 49.5%; Female 50.5%
metdoc	have you met any of the local doctors	Yes, most of them; Yes one or two of them; No.	n=441	Yes, most of them 56.2%; Yes, one or two of them 35.6%; No 8.2%
knowdoc	how would you say you know the local doctors	Socially; Only in relation to work; Socially and in relation to work.	n=442	Socially 0.9%; Only in relation to work 83.5%; Socially and in relation to work 12.9%. Missing responses 2.7%
newemply	employment status	Proprietor / director / partner; employee or regular locum; locum; other category.	n=442	proprietor / director / partner 24.7%; employee pharmacist 64.7%; locum pharmacist 7.0%; other 3.6%.

Table 20 continued

Variable name	Description	Response categories	Total	Summary of the responses
typpharm	type of pharmacy	Independent; Multiple with less than 5 branches; Multiple 5-20; Multiple 21-100, Multiple over 100, I work in more than one type of pharmacy, I work in an office	n=439	Independent 36.4%; Multiple with less than 5 branches 10.5%; Multiple with 5-20 branches 6.2%; Multiple with 21-100 branches 6.8%; Multiple with over 100 branches 32.6%; I work in more than one type of pharmacy 7.1%; I work in an office 0.2%
helthcen	if work in a health centre	Yes; No	n=435	Yes 6.2%; No 92.3%
location	location of the pharmacy	City / Town centre; Residential inner-city; Suburban; Rural; Out of town shopping centre; Based in a office.	n=439	City / Town centre 25.7%; Residential inner-city 15.9%; Suburban 37.4%; Rural 15.7%; Out of town shopping centre 5.2%
longqual	number of years qualified	State years	n=440	The mean number of years since qualification was nearly 20 years. The range being from 6 months to 55 years.
yerinjob	number of years in job	State years	n=430	The mean number of years in their present job was just over 10 years. However the most frequent response was one year. The range being from 4 months to 40 years.
numpract	number of practices scripts come from	State number	n=420	The mean number of practices from which prescriptions came from was just over 4. The most frequent response was 2 practices. The range was from 1 to 21.
numpharm	number of pharmacies within half a mile	State number	n=413	The mean number of pharmacies within half a mile of the pharmacy was close to 2. The range was from zero to 12.

Table 20 continued

Variable name	Description	Response categories	Total	Summary of the responses
otcwork	workload in terms of OTC	Very busy; busy; average; quiet; very quiet.	n=440	Very busy 13.9%; Busy 31.6%; Average 40.7%; Quiet 12.5%; Very quiet 1.4%
prxwork	workload in terms of prx	Very busy; busy; average; quiet; very quiet.	n=435	Very busy 26.2%; Busy 26.7%; Average 26.9%; Quiet 17.5%; Very quiet 2.8%
contedu	number of hours of continuing education during the past three months	State number	n=412	The mean number of hours of continuing education was 10. The range being from zero to 250 hours.
pharmeet	number of pharmacy meetings attended during the past three months	State number	n=387	The mean number of pharmacy meetings attended during the past three months was 1. The range was from zero to 7.
commite	member of a committee	Yes; No	n=441	Yes 14.7%; No 85.3%

6.4.1.1 Relationships between each of the variables

The relationships between each of the variables are important for two reasons. First they present a more detailed picture of the characteristics of community pharmacy and the pharmacists that work in this setting. Second, in chapter 7 when the effects of the variables on the pharmacists' responses are investigated, it is important to take into account the relationships between the variables which could bias or confound the results.

Statistical methods such as correlations are often employed when one is exploring the relationships between two variables. However correlations require the data to be at least at the ordinal level. Many of the factors discussed above are measured in categories which prevents the use of correlations. Instead simple cross-tabulations were employed to describe the relationships between the different variables. Some of the variables and their relationships are discussed below.

Employment status.

Employment status seemed to have a relationship with a number of other attributes. In particular with age. In general younger pharmacists tended to be employee pharmacists rather than proprietors. Conversely a trend was observed whereby older pharmacists were more likely to be proprietors. A relationship between employment status and location of the pharmacy where the pharmacists worked was also observed, with employee pharmacists being more likely to work in town or city centres. In terms of workload, employee pharmacists were more likely to be in pharmacies with a high workload in both OTC sales and prescription medicines.

Type of pharmacy company

The type of pharmacy company that the pharmacists worked in seemed to be related to a number of other variables especially those relating to the clientele of the pharmacy. Pharmacists who worked in independent pharmacies were more likely to describe their clientele as local residents, where as pharmacists who worked for large multiple pharmacies were more likely to describe their clientele as a mixture of shoppers and local residents. Large multiple pharmacies were also more likely to be in the town centre locations and independent pharmacies were more likely to be located in suburban locations. Pharmacists working in multiple companies were also more likely to be busier both in terms of OTC sales and prescription medicines.

Age

As was reported earlier, younger pharmacists were more likely to be employee pharmacists, older pharmacists were more likely to be proprietors. As would be expected younger pharmacists were more likely to work in large multiple companies. Younger pharmacists were more likely to work in town centre and out of town shopping centres whilst older pharmacists were more likely to work in suburban areas. Younger pharmacists were more likely to work in busy or very busy pharmacies in terms of dispensing and OTC sales.

Gender

More female pharmacists worked in large multiple pharmacies than male pharmacists. Male pharmacists were more likely to work in independent pharmacies. Similarly more female pharmacists worked in city or town centre pharmacies than male pharmacists, who were more likely to work in suburban locations. More female pharmacists described their clientele as middle class, more male pharmacists described their clientele as working class. More female pharmacists had carried out their pre-registration training in the hospital setting, the majority of the male pharmacists had carried out their pre-registration training in the community setting.

Pre-registration training.

More of the pharmacists who had completed their pre-registration training in the hospital setting were currently working in independent pharmacies. These were less likely to be working in city or town centre locations and more likely to be working in suburban locations. Those who had carried out their pre-registration training in the community setting were more likely to be in pharmacies where the workload both in terms of OTC sales and dispensing is described as very busy or busy.

Staffing of the pharmacy

Number of full-time pharmacists

Pharmacists working in pharmacies with 2 or more full-time pharmacists were more likely to be working in large multiple pharmacies. These pharmacists were more likely to be working in city or town centre locations. These pharmacists also tended to be newly qualified and younger. These pharmacists also tended to receive their prescriptions from more than 4 medical surgeries and were busier both in terms of OTC sales and prescription medicines.

Number of full-time support staff

There are several different types of support staff in a pharmacy. These include qualified and non-qualified dispensing technicians and non-dispensary staff. The pattern for the presence of all types of support staff was very similar. Generally it was more likely to have support staff in pharmacies with two or more pharmacists, pharmacies belonging to large multiple pharmacy companies, pharmacies located in city or town centres and pharmacies describing their workload as very busy or busy both in terms of OTC sales and prescription workload.

Continuing education

More continuing education seemed to be undertaken by pharmacists who had busy or very busy workloads in terms of OTC sales and prescription medicines than those with quiet or very quiet workloads. Those with an average workload however undertook the most continuing education. Males were slightly more likely than females to undertake continuing education. Middle aged pharmacists seemed to be the group most likely to undertake continuing education.

6.4.2 Extended role services

6.4.2.1 Involvement in local extended role services

The pharmacists were asked to indicate if they were involved in any local extended role services. The options provided for the pharmacists included, health promotion services, prescribing advice services, provision of diagnostic testing, provision of compliance aids and involvement in needle exchange schemes. In addition the pharmacists were provided with the opportunity to describe other extended services that they were involved with. The purpose of this question was to provide an outcome measure for more advanced analysis to determine the characteristics of pharmacists which are likely to predict involvement in the extended roles. The results of this analysis are presented in section 7.4.3.

Two hundred and forty five pharmacists (55.4%) reported being involved in at least one of the extended role services investigated. Table 21 below shows the involvement of the pharmacists in the different aspects of the extended roles.

Table 21 Involvement of pharmacists in extended role services

Extended role services	Frequency	Percentage of Sample. (n = 442)
Health promotion services	128	29.0%
Prescribing advice services	62	14.0%
Provision of diagnostic testing	79	17.9%
Provision of compliance aids	106	24.0%
Needle exchange services	122	27.6%

Health promotion services was the extended role service which involved the most pharmacists (128), followed by needle exchange (122) and provision of compliance aids (106). Provision of diagnostic testing (79) and providing prescribing advice (62) were the services which involved the least number of pharmacists.

Other extended role activities reported are listed in the Table 22 below. These services demonstrate the wide range of activities which are considered as the "extended role".

Table 22 Additional extended role services

Other extended role services	Frequency
Pregnancy testing	1
Domiciliary oxygen	3
Medicine Counter Assistant Training	1
Advising HM prison locally	1
Pilot domiciliary visiting	7
Supervised Methadone	3
Smoking cessation projects	2
Asthma projects	4
Talks to organisations	1
Truss fitting / incontinence aids/ living aids	1
Compliance clinic	2
Training of social services staff	2
Advice to industrial panels	1
Discharge project from hospital	2
Emergency GP service	1
Brown bag project	1
Hospice services	2

6.4.2.2 Initiation and Support of the extended roles

Many organisations have been advocating an extended role for the pharmacist, a question was included to ascertain which organisations were involved in the different extended roles. For each extended role several organisations can be involved thus the percentages presented in Table 23 add up to more than 100%. Table 23 below presents

the involvement of each organisation as the percentage of the total number of each extended role service reported in the survey.

Table 23 Organisations and their involvement in extended role services

	Health Promotion n = 128	Prescribing advice n = 62	Diagnostic testing n = 79	Compliance aids n = 106	Needle exchange n = 122
Your company / yourself	56.3%	50%	81%	87.7%	27%
Local Health Authority	52.3%	37%	6.3%	5.7%	66.4%
The LPC	9.3%	9.7%	2.5%	-	7.4%
The NPA	3.9%	3.2%	-	-	0.8%
A university	1.6%	4.8%	1.3%	0.9%	-
Local GPs	3.1%	29%	3.8%	11.3%	-
Pharmaceutical Industry	4.6%	9.7%	-	2.8%	-
Other	1.6%	1.6%	-	1.9%	3.3%

*Percentages total more than 100% since more than one organisation can be involved in the services

For health promotion services pharmacists or their companies and the local health authority were the parties that were involved in organising the majority of the services. In terms of prescribing advice as well as the pharmacists and the local health authority, local GPs were also involved in organising this service. Provision of diagnostic testing and provision of compliance aids did not on the whole involve organisations other than the pharmacists or their companies. Interestingly needle exchange services were primarily organised by the local health authorities. Other parties involved in the organisation of extended services included social services departments for both health promotion and provision of compliance aids; community drugs teams and local environmental health departments for provision of needle exchange; and the Welsh prescribing support project for prescribing advice services.

6.4.2.3 Important factors in setting up and carrying out extended services

A number of factors were identified as important from the qualitative findings (see chapter 5) and the literature review (see chapter 2) in implementing the extended role services. These factors were presented to the pharmacists in the form of statements. The pharmacists were asked to indicate the importance of each of the factors on a five point likert scale (see Appendix 5, question 9). The degree of importance attached to each

statement is presented in Table 24 below. Table 24 also presents median scores for each statement giving an overall indication of the importance of the statement.

Factors considered very important included additional training and an appropriate remuneration system. Factors considered important include the demand of the service by the local doctors, public demand for the service, the presence of a facilitator who could help set up the service, presence of extra pharmacists, access to medical notes, ability to leave the pharmacy during the day, and company policy. The only factor not considered important was relaxation of supervision of dispensing. The pharmacists were presented with the opportunity to make further comments. These comments provide additional qualitative data which confirm the findings of the qualitative stage, in particular they demonstrate that the factors measured in the statements can not be considered in isolation since they are associated with each other.

In terms of remuneration, additional payments were required rather than the redistribution of existing funds. The issue of remuneration was not just about funding services, it seemed also to be about obtaining approval of the activities from the health authority as well as recognition for a professional service. A selection of comments relating to remuneration are presented below.

> With approval of health authority and properly funded (Very important)
>
> Additional money, not re-division of existing funds (very important)
>
> We should get paid for extended services, and also if we were busy would need some sort of help.
>
> Adequate rewards for professional service (very important)

Issues associated with training included time off work to undertake additional training. The specific training required was in clinical aspects of pharmacy as the comment below demonstrates.

> Time off work for postgraduate qualification esp. clinical study (important)

In terms of establishing and setting up services, a need for support was also expressed as demonstrated below:

> Help and advice from other pharmacists undertaking this work (Very important)
>
> Local health authority support

The importance of the terms of service and job descriptions for the pharmacists was also demonstrated in the additional comments:

> Individual contracts, not premises contract (very important)
>
> If the owner would allow it (very important)
>
> Open to all contractors if willing and able to participate (very important)

As in chapter 5, a demonstrated benefit to people and a real demand for the services from people was considered very important in establishing services.

> Worthwhile doing it (very important)
>
> Some benefit to patient (very important)
>
> If the extended service was truly required and meaningful (very important)
>
> If it improved the quality of healthcare (very important)
>
> Service audited and found beneficial to patients (important)
>
> Recognised need from local population

The importance of time and space in the pharmacy was also a consideration for the pharmacists as the comments below demonstrate.

> If I had more time
>
> If there was space in the dispensary / shop for paper work (very important)

Another important factor in establishing the extended roles was that they integrated pharmacists into the primary health care team as the comment demonstrates below.

> To be considered as part of the medical team (very important)

Once again there was a sense of the extended roles raising the status of the occupation.

To improve professional status (very important)

Table 24 Importance of factors in establishing extended role services

Statements (Score)	Very important (1)	Important (2)	Neither important nor unimportant (3)	Not important (4)	Of no importance at all (5)	Median Score
• If I had additional training	52.0%	36.7%	6.1%	0.5%	1.1%	1.0
• If the extended services became part of my terms of service with the health authority	33.5%	36.4%	18.3%	3.8%	3.2%	2.0
• If I had more public demand and they were willing to pay for the services	30.1%	42.3%	18.6%	3.8%	1.4%	2.0
• If there was a more appropriate remuneration system	50.7%	36.4%	5.2%	2.3%	0.7%	1.0
• If technicians in my pharmacy were allowed to do the dispensing without supervision	7.2%	12.9%	20.8%	21.7%	28.5%	4.0
• If there were more pharmacists in the pharmacy that I work in	22.4%	38.2%	18.3%	9.5%	7.9%	2.0
• If I did not have to be present in the pharmacy at all times	22.9%	34.2%	17.6%	10.4%	10.4%	2.0
• If there was a facilitator who could initially set the services up for me	21.5%	45.5%	18.8%	5.2%	4.5%	2.0
• If I had access to patients' medical notes	16.3%	34.2%	31.2%	9.3%	3.6%	2.0
• If it was my company's policy to implement the services	19.0%	32.8%	25.8%	6.6%	10.4%	2.0
• If the local doctors wanted the services	29.0%	48.9%	11.5%	3.2%	2.0%	2.0

6.4.2.4 Willingness to provide extended role services in context

The previous section presented individual factors which are important to pharmacists in setting up extended services in general. The most important factors were those of additional training, additional remuneration, the demand of the services from the local doctors, the terms of the service of the pharmacist and support / recognition from the health authority. However, the importance of these factors will vary according to the nature of the extended service. In addition these factors can not be considered in isolation, since in practice pharmacists will take into account all the factors simultaneously.

The pharmacists were presented with three scenarios which took into account the important factors discussed above and were asked to consider how willing they were to provide a number of different extended services. Scenario 1 provided pharmacists with training only, scenario 2 provided pharmacists with training and additional payment as part of their terms of service and scenario 3 presented pharmacists with additional training and payments but lack of support from the local doctors.

The effect of each scenario on 9 suggested extended services can be seen in Table 25 below, where for each scenario a score for the willingness of the pharmacists for all of the 9 suggested extended services has been calculated (see Appendix 5, question 10).

Since there are 9 suggested services, as a guide a score of 9 indicates very willing, 18 indicates willing, 27 indicates neither willing nor unwilling, 36 indicates unwilling and 45 indicates very unwilling.

Table 25 Overall willingness of the pharmacists to provide extended services (score of 9 = very willing, 18 = willing, 27 = neither willing nor unwilling, 36 = unwilling, 45 = very unwilling)

	Scenario 1: Training only	Scenario 2: Training and payments	Scenario 3: Doctors not favourable
Total	412	417	411
Mean	30.3	17.5	26.4
Std. deviation	7.2	5.0	7.4

It can be seen that under scenario 1 where only training is provided, pharmacists are either undecided or verging on the unwilling scores to provide the services. Under the conditions of scenario 2 where adequate additional payments are provided as part of the terms of service as well as additional training, the pharmacists are generally willing to provide the extended services. This difference was tested for statistical significance using the Wilcoxon matched-pairs signed-rank test for non-parametric related samples. A highly statistically significant difference was observed (scenario 1 v scenario 2: n = 410, z= -17.33, p< 0.001).

Scenario 3 introduces the concept of the unfavourable attitude of the local doctors towards the services. Despite the presence of training and adequate additional payments as part of the terms of service in this scenario, pharmacists seem undecided about their willingness to provide the suggested services under the condition of lack of support from the local doctors. Further analysis showed that the difference between the pharmacists willingness under the conditions of scenario 3 compared to both scenario 1 and 2 was statistically significant (scenario 3 v scenario 1: n = 405, z= -8.17, p< 0.001. Scenario 3 v scenario 2: n = 411, z=-16.74, p< 0.001).

The extended services included different degrees of involvement in health promotion and minor ailments, as well as a number of clinical services directed both to clients and local doctors. Table 26 below presents the different extended roles and the average score for willingness to set up and provide each service. The responses to each extended role activity were tested for significant differences using the Friedman test for three or more related samples. In each differences were found to be highly statistically significant (see Table 26).

In terms of health promotion activities, pharmacists were not willing to set up and run health promotion campaigns or give talks to local groups, unless they had adequate training and received additional payments. If the local doctors were not favourable towards this role, the willingness of the pharmacists to carry out the activity was slightly dampened. This was similar to the pharmacists' willingness for giving talks to community groups on health related topics.

Willingness to provide a minor illness clinic followed the same pattern as those of the health promotion activities. Pharmacists, however, were less willing to provide such a clinic compared to the health promotion services.

In terms of activities and services relating to clients' drug therapy, pharmacists were generally happy to advise clients on potential side-effects on every prescription, and to provide compliance aids to encourage adherence with the drug therapy as long as they had adequate training and additional payments. Their willingness was not affected to a great extent by the unfavourable attitude of the local doctors. The same pattern was also observed to a certain extent for providing domiciliary visits to clients at home to monitor their compliance and progress with their drug therapy, except that the attitude of the doctor had a negative effect on the willingness of the pharmacists to provide this service.

Pharmacists were willing to meet up with local doctors to discuss drug related topics, as long as adequate training and additional payments were provided as part of their terms of service. Generally the more clinical involvement that the services required from the pharmacists, such as collecting clinical parameters to determine the efficacy of the drug therapy and then suggesting therapy changes to doctors, the less willing they were to provide such a service despite the provision of training and additional payments. With these extended service the attitude of the local doctors exerted a greater negative effect on the willingness of the pharmacists to provide the services.

Table 26 Mean willingness (median) to provide extended services under 3 scenarios (Scores 1=very willing, 2=willing, 3=neither willing nor unwilling, 4=unwilling, 5= very unwilling)

Extended services	Scenario 1: Training only	Scenario 2: Training and payment	Scenario 3: Doctors are not favourable	Friedman test
• On every prescription advise patients of side-effects that might develop.	2.5 (2.0)	1.7 (2.0)	2.3 (2.0)	$\chi2$=124.9, n=407, df= 2, p<0.001
• Set up and run several health promotion campaigns throughout the year.	3.4 (4.0)	1.8 (2.0)	2.5 (2.0)	$\chi2$=319.9, n=404, df=2, p<0.001
• For people on repeat prescriptions, collect and evaluate clinical parameters to determine the efficacy of the drug therapy e.g. record and collect blood pressure and peak flow readings.	4.0 (4.0)	2.1 (2.0)	3.5 (4.0)	$\chi2$=377.7, n=407, df=2, p<0.001
• Provide compliance aids to encourage adherence with drug regimen.	3.1 (3.0)	1.6 (2.0)	2.2 (2.0)	$\chi2$=258.8, n=407, df=2, p<0.001
• In the light of clinical information, recommend changes in drug therapy to doctors so that the drug therapy maximises the treatment.	3.1 (3.0)	1.9 (2.0)	3.4 (4.0)	$\chi2$=308.4, n=403, df=2, p<0.001
• Give talks to community groups on health related topics.	3.6 (4.0)	2.3 (2.0)	2.8 (3.0)	$\chi2$=248.0, n=404, df=2, p<0.001
• Routinely meet up with doctors to discuss drug related topics.	2.9 (3.0)	1.8 (2.0)	3.5 (4.0)	$\chi2$=317.7, n=401, df=2, p<0.001
• Provide a minor illness clinic, in which people make appointments to consult you on minor ailments.	3.8 (4.0)	2.2 (2.0)	3.2 (3.0)	$\chi2$=261.5, n=403, df=2, p<0.001
• Domiciliary visits to patients at home to monitor compliance and progress with their drug therapy.	3.9 (4.0)	2.0 (2.0)	2.9 (3.0)	$\chi2$=366.3, n=402, df=2, p<0.001

6.4.3 Pro-activity of pharmacists

Studies investigating pharmacists' advice giving behaviour have found pharmacists to be passive in providing advice (see chapter 2). This has led to criticism of pharmacists for missing opportunities to deliver advice in all of their interactions with their clients. Subsequently pharmacists have been encouraged to become pro-active in their every day activities by providing advice to clients and intervening on prescription. This section presents pharmacists' estimated reported activities in advice giving and interventions on prescriptions, the factors that they feel influence these activities and how they would behave in certain situations that would require them to be pro-active. Pro-activity in relation to provision of advice is presented prior to pro-activity in terms of interventions on prescriptions.

6.4.3.1 Incidence of provision of advice on prescription and non-prescription medication

Pharmacists were asked to estimate the number of times advice was provided on prescription and non-prescription medication per day (see Appendix 5, question 20 and 21). Table 27 below shows that the frequency and occurrence of advice on both prescription and non-prescription medication are very similar. Pharmacists estimated that they provide advice on prescription medicines between 10 - 20 times a day, and a similar figure for non-prescription medicines. There were no significant differences in the provision of advice between prescription and non-prescription medicines (t test for paired samples, t value = 0.3, df = 438, p=0.7). These two measures are important not only for providing an indication of pharmacists' current activities, but in chapter 7, these measures are one of the outcome variables for the multiple regression analysis.

Table 27 Number of times advice is given per day on prescription and non-prescription medicines

Incidence of provision of advice per day	Advice on prescription medication (n=438)	Advice on non-prescription medication (n=438)
0	0.2%	-
1-3 times	7.2%	3.2%
4-6 times	15.6%	11.1%
7-9 times	14.7%	13.6%
10-15 times	16.3%	26.7%
16-20 times	15.6%	19.9%
21-25 times	7.2%	10.2%
26-30 times	7.2%	4.1%
31-35 times	1.6%	1.8%
more than 35 times	13.6%	9.3%
Total	100	100

6.4.3.2 Factors important in the advisory role of the pharmacist

The qualitative interviews with pharmacists drew attention to a number of points that were important in relation to advice on prescribed medicines. These themes were presented as a series of statements (see question 13). Pharmacists were asked to indicate the extent of their agreements with the statements on a five point scale (See Table 28 below).

The pharmacists agreed with the statement that they only discuss drug dosages with doctors where there is a potential adverse effect. The majority disagreed that they usually do inform doctors of the availability of better treatments for patients. In terms of drug interactions, pharmacists agreed that many drug interactions are of no practical importance and that in drug interactions they only inform the doctor of the possibility that they might occur and that it is the responsibility of the doctor to decide if the drug interaction is actually responsible for the patients' problems. Many agreed that because they don't have access to full medical notes and history they are not in a position to suggest an alternative treatment when there is a drug interaction.

In terms of provision of information, the vast majority disagreed with the statement: *people do not need to know the risk and benefits of their treatment.* There was also disagreement with the statement: *I don't give patients all the information they request*

regarding problems of medication. Many agreed that they try and meet people's expectations so that they are satisfied.

Several statements related to the doctor patient relationship. Over half of the pharmacists agreed that if they mention their concerns to patients, most will go back and tell the doctor. The vast majority also agreed that giving advice to patients regarding prescribed medicines will tread on doctor patient relationships.

Table 28 Importance of factors in the provision of advice on medicines

Statements (Scores)	Strongly agree (1)	Agree (2)	Neither Agree or Disagree (3)	Disagree (4)	Strongly Disagree (5)	Median Score
• I only discuss drug dosages with doctors where there is a potential adverse effect	29.6%	42.3%	12.9%	12.4%	1.4%	2.0
• I usually inform doctors of the availability of better treatments for patients	0.2%	11.3%	29.6%	44.1%	13.1%	4.0
• I think many drug interactions and side effects are of no practical importance	2.3%	30.8%	26.5%	28.5%	10.2%	3.0
• In drug interactions I only inform the doctor of the possibility that they might occur. It is for the doctor to decide if the drug interaction is actually responsible for the patients' problems	11.8%	51.4%	16.5%	16.7%	1.8%	2.0
• If I mention my concern to patients about their medication, most will go back and tell the doctor	7.5%	42.5%	34.2%	11.5%	2.0%	2.0
• People do not need to know the risk and benefits of their treatment	1.1%	5.2%	14.3%	54.1%	23.5%	4.0
• I try and meet people's expectations so that they are satisfied	29.9%	51.4%	11.3%	4.1%	0.9%	2.0
• Because I don't have access to full medical notes and history I am not in a position to suggest an alternative treatment when there is a drug interaction	11.3%	36.0%	20.1%	27.6%	3.8%	3.0
• I don't give patients all the information they request regarding problems of medication	4.8%	28.5%	24.4%	31.4%	9.7%	3.0
• I am aware that I might treat on doctor-patient relationships when I give advice on prescribed medication	12.0%	52.9%	19.5%	12.9%	1.4%	2.0

6.4.3.3 Pharmacists perception of people's expectations

One of the main themes to emerge from the qualitative interviews, relating to the extended role of the pharmacist was the perceived expectations of people. These perceptions were presented to the pharmacists as a series of statements (see question 22). They were asked to indicate the degree of agreement with each statement (See Table 29 below).

Several statements related to the role of the pharmacist in advice giving concerning prescribed medication. The majority of the pharmacists agreed that most people expect the doctor to have given them information concerning their treatment. They also agreed that in telling patients about prescription medicines they have to be careful not to get them worried in case they don't take their medicines. Pharmacists agreed with the statement that those people on repeat prescriptions need less advice than those on new prescriptions. They also agreed that people with a new prescription want advice from a pharmacist.

Several of the statements related to the role of the pharmacist in responding to symptoms and the sale of medicines. A high proportion of the pharmacists disagreed that most people who come into the pharmacy do not have any set ideas about what medicines they want to buy. A high proportion also disagreed that people think OTC medicines are dangerous. Over 60% disagreed that most people who ask for medicines by name want advice. A vast majority agreed that unless they had used tact when refusing to sell a medicine, they would upset the customer. Over 50% agreed that in responding to symptoms, most people wanted pharmacists to say that they don't have to go and see the doctor.

Several of the statements related to the role of the pharmacist in general. Over 90% agreed that they had to make sure that people who came into the pharmacy were satisfied, if they weren't they were unlikely to come back. Over 60% of the pharmacists agreed that the majority of people, just expect the pharmacist to fill the doctors prescription as quickly as possible. Over 90% agreed that most people who come into the pharmacy expect a wide range of products to be in stock.

Table 29 Pharmacists' perceptions of people's expectations

Statements	Strongly agree	Agree	Neither agree or disagree	Disagree	Strongly disagree	Median Score
(Scores)	(1)	(2)	(3)	(4)	(5)	
• I have to make sure the people who come into the pharmacy are satisfied. If I don't they won't come back.	64.0%	29.9%	4.5%	0.5%	-	1.0
• Unless I use tact, when I refuse to sell a certain medicine, I upset the customer	41.2%	49.3%	5.7%	2.9%	-	2.0
• Most people who come into the pharmacy do not have any set ideas about what medicines they want to buy	1.8%	19.0%	33.5%	41.9%	2.9%	3.0
• People expect me to keep a wide range of products in stock	32.6%	61.5%	3.6%	0.7%	0.2%	2.0
• Most people think that OTC medicines are dangerous	-	3.2%	19.5%	59.7%	16.3%	4.0
• Most people who ask for medicines by name want advice from me	0.7%	5.9%	29.2%	56.8%	6.3%	4.0
• Most people who come in to have a new prescription dispensed want advice from me	6.3%	40.3%	34.2%	17.4%	0.9%	3.0
• Most people on repeat prescriptions need less advice than those on new prescriptions	11.3%	63.3%	15.8%	7.5%	1.1%	2.0
• I don't have the time to really get to know my patients	5.4%	18.6%	23.5%	39.1%	12.0%	4.0
• The majority of people just expect me to fill the doctors prescription as quickly as possible	16.1%	46.8%	14.5%	21.0%	0.9%	2.0
• People expect the doctor to have given them all the information on their treatment	7.2%	40.0%	21.3%	28.3%	2.7%	3.0
• Meeting people's expectations is not necessarily in their best interest	7.7%	38.7%	34.8%	15.2%	2.3%	3.0
• In telling patients about their prescription medicines I have to be careful not to get them worried in case they don't take their medicines	29.2%	63.6%	4.5%	2.3%	-	2.0
• In responding to symptoms, most people want me to say they don't have to go and see the doctor	8.4%	47.7%	25.3%	16.3%	1.6%	2.0

6.4.3.4 Provision of pro-active advice in context

The literature review reported that there was great variation on the provision of advice in pharmacy practice. Both the interviews and the literature review reported workload as a factor influencing the extent of provision of advice.

The effect of the workload of the pharmacists on different types of interactions with people was investigated in 4 scenarios which varied the degree of how busy the pharmacist (see Table 32) was as well as varying the types of interactions with people (see Table 30). The pharmacists were asked to consider each scenario and indicate on a five point scale, how likely they are to provide advice without being asked, in each type of interactions with people (see question 11).

The scenarios progressively made the pharmacist more busy. The nature of how busy pharmacists are is also varied. The type of interactions with people were: someone who asked for a product by name, someone who asks for a repeat prescription, someone who brings in a repeat prescription, someone who brings in a new prescription and someone who is looking at leaflets.

Table 30 below presents the overall aggregate score, under the 4 different scenarios, of the likelihood of pharmacists providing pro-active advice in the five different types of interactions with people. As a guide a score of 4 indicates that the pharmacists would give pro-active advice, a score of 8 indicates that the pharmacists may provide pro-active advice, a score of 12 indicates that the pharmacists do not know if they would provide pro-active advice, a score of 16 indicates that the pharmacists may not provide pro-active advice and a score of 20 indicates that the pharmacists would not provide pro-active advice.

Table 30 Overall likelihood of pharmacists to provide pro-active advice in different types of interactions with people (Score of 4 = would give pro-active advice, 8 = may give pro-active advice, 12 = don't know, 16 = may not give pro-active advice, 20 = would not give pro-active advice.)

	... who asks for a product by name	... who asks for a recommendation	...a prescription which they have not had before	...a repeat prescription which they have had lots of times before	...has just picked up leaflets on losing weight and reducing blood pressure
Total	437	438	437	438	437
Mean	12.03	7.20	7.90	15.25	14.33
Std. deviation	4.06	3.25	3.49	3.52	3.17

The aggregated responses to each type of interaction are significantly different (Friedman test: $\chi 2 = 1153.51$, n=436, df=4, $p<0.0001$). Table 31 presents the results of comparisons using the Wilcoxon matched pairs signed rank test which give an indication of where the differences lie in the aggregated responses. It can be seen that the pharmacists are most likely to be pro-active in providing advice to those who present with a new prescription and to people who ask for a recommendation. The pharmacists were less likely to be pro-active in interactions with people who asked for a product by name. Pharmacists were also less likely to be pro-active in giving advice to people who were looking at leaflets on losing blood pressure and reducing blood pressure. Pharmacists were least likely to be pro-active in interactions with people which involved a repeat prescription.

Table 31 Comparisons between the likelihood of providing pro-active advice in different interactions with people using the Wilcoxon Matched Pairs Signed Ranks Test

Comparison	z value	Significance	Direction of difference
• Pro-active advice with product request v pro-active advice with a recommendation request	-16.7	0.0001	For recommendation requests pharmacists are more likely to provide pro-active advice
• Pro-active advice with product request v pro-active advice with a new prescription	-15.3	0.0001	For new prescriptions pharmacists are more likely to provide pro-active advice
• Pro-active advice with product request v pro-active advice with a repeat prescription	-14.1	0.0001	For product requests pharmacists are more likely to provide pro-active advice
• Pro-active advice with product request v pro-active advice with people who are looking at leaflets	-10.4	0.0001	For product requests pharmacists are more likely to provide pro-active advice
• Pro-active advice with a recommendation request v pro-active advice with a new prescription	-4.1	0.0001	For recommendation requests pharmacists are more likely to provide pro-active advice
• Pro-active advice with a recommendation v pro-active advice with a repeat prescription	-17.9	0.0001	For recommendation requests pharmacists are more likely to provide pro-active advice
• Pro-active advice with a recommendation v pro-active advice with people who are looking at leaflets	-17.8	0.0001	For recommendation requests pharmacists are more likely to provide pro-active advice
• Pro-active advice with a new prescription v pro-active advice with a repeat prescription	-17.8	0.0001	For new prescriptions pharmacists are more likely to provide pro-active advice
• Pro-active advice with a new prescription v pro-active advice with people who are looking at leaflets	-17.7	0.0001	For new prescriptions pharmacists are more likely to provide pro-active advice
• Pro-active advice with a repeat prescription v pro-active advice with people who are looking at leaflets	-5.3	0.0001	People who are looking at leaflets are more likely to receive pro-active advice

Table 32 below presents the effect of each scenario on the pro-active provision of advice to people. Since there are 5 types of interactions with people, as a guide a score of 5 indicates that the pharmacist would give advice without being asked, 10 indicates that they might give advice without being asked, 15 indicates that the pharmacists are unsure in giving advice without being asked, 20 indicates that the pharmacists might not give advice without being asked, and 25 indicates that the pharmacists would not give advice without being asked. The aggregated responses to each scenario are significantly different (Friedman test: $\chi 2 = 720.40$, n=436, df=3, $p<0.001$).

Table 32 Overall likelihood of providing pro-active advice under varying conditions of workload (5 = give pro-active advice, 10 = might give pro-active advice, 15 = don't know, 20 = may not give pro-active advice, 25 = would not give pro-active advice.)

	Scenario 1: quiet period	Scenario 2: busy period due to advice being sought	Scenario 3: busy period due to the number of prescriptions	Scenario 4: busy period and client is in a rush to go
Total	438	437	437	436
Mean	10.07	14.81	15.88	15.98
Std. deviation	2.78	3.75	3.99	3.90

The Wilcoxon Matched Pairs signed rank test was used to compare the responses to the different scenarios (see Table 33). Pharmacists are most likely to give advice under the conditions of scenario 1, where the workload of the pharmacist is at its lowest. Scenario 2, where there is a high workload in terms of request for advice, produces the next most likely condition where pro-active advice is provided. The effect of a high prescription workload is demonstrated in scenario 3 where pharmacists are less likely to provide pro-active advice. Situations in which pharmacists are least likely to provide advice occurs when they sense that their clients have no time for a consultation and are in a rush to go.

Table 33 Comparisons between the likelihood of provision of pro-active advice under varying workloads using the Wilcoxon Matched Pairs Signed Ranks Test

Comparison	z value	Significance	Direction of difference
• Pro-active advice during a quiet period v pro-active advice in a busy period due to advice	-17.07	< 0.001	During quiet periods pharmacists are more likely to provide pro-active advice
• Pro-active advice during a quiet period v pro-active advice in a busy period due to prescriptions	-17.20	< 0.001	During quiet periods pharmacists are more likely to provide pro-active advice
• Pro-active advice during a quiet period v pro-active advice when the patient is in a rush to go	-17.35	< 0.001	During quiet periods pharmacists are more likely to provide pro-active advice
• Pro-active advice during a busy period due to advice v pro-active advice during a busy period due to prescriptions	-10.31	< 0.001	During busy periods due to provision of advice pharmacists are more likely to provide pro-active advice
• Pro-active advice during a busy period due to advice v pro-active advice when the patient is in a rush to go	-8.77	< 0.001	During busy periods due to provision of advice pharmacists are more likely to provide pro-active advice
• Pro-active advice during a busy period due to prescriptions v pro-active advice when the patient is in a rush to go	-1.04	0.33	No statistical difference observed

6.4.3.4.1 Summary

Table 34 summarises the effect of each scenario on the likelihood of the pharmacist providing pro-active advice on each of the different types of interactions with people. It can be seen that in general for interactions with people who ask for a product by name pharmacists report that they are less likely to be pro-active as their workload increases. In terms of interactions where a person asks for a recommendation pharmacists are willing to provide pro-active advice, regardless of their workload. This is also the case with people who present with prescriptions that they have not had before. For people who present with a repeat prescription, however, pharmacists are less willing to provide pro-active advice as their workload increases. This was also the case with providing pro-active advice to people who may be looking at leaflets on losing weight and reducing blood pressure.

Table 34 The likelihood of provision of pro-active advice under the conditions of the 4 scenarios (scores: 1= would provide advice, 2=might provide advice, 3=don't know, 4=might not provide advice, 5=would not provide advice).

Client interaction	Scenarios. Data presented as Median scores			
	Scenario 1: quiet period	Scenario 2: busy period due to advice being sought	Scenario 3: busy period due to the number of prescriptions	Scenario 4: busy period and client is in a rush to go
• Someone who asks for a product by name	2.0	3.0	4.0	3.0
• Someone who asks for a recommendation	1.0	1.0	2.0	2.0
• Someone who hands over a prescription they have not had before	1.0	2.0	2.0	2.0
• Someone who hands over a repeat prescription which they have had lots of times before	3.0	4.0	4.0	5.0
• Someone you notice who has just picked up leaflets on losing weight and reducing blood pressure	2.0	4.0	4.0	4.0

6.4.3.5 Number of interventions on prescriptions

Pharmacists' actions on prescriptions can be separated into two categories: clinical interventions concerning drug interactions or appropriateness of the patients' drug therapy and; management interventions concerning missing items on prescriptions, quantities and clarification of the prescription. The pharmacists were asked to estimate the number of such interventions in a week (see question 17 and 18). Table 35 below presents their estimates on the different types of interventions. These measures will also be used in chapter 7 as outcome variables in multiple regression analysis.

Table 35 Number of clinical and management interventions per week

Number of intervention	Clinical interventions (n=438)	Management interventions (n=438)
0	7.3%	0.7%
1-3 times	49.0%	9.8%
4-6 times	24.0%	19.1
7-9 times	9.8%	14.8%
10-15 times	6.8%	29.1%
16-20 times	0.7%	10.5%
21-25 times	0.2%	6.4%
26-30 times	0.7%	3.9%
31-35 times	0.2%	1.4%
more than 35 times	0.5%	4.5%
Total	100%	100%

The majority of the pharmacists estimated that they would make between 1-6 clinical interventions in a week. Significantly more management interventions on prescriptions were reported by the pharmacists (t test for paired samples, t value = -27.88, df = 437, $p<0.001$). The majority of the pharmacists estimated that they would make between 4 and 20 interventions per week concerning management of prescriptions.

6.4.3.6 Important factors in deciding to intervene on a prescription with a drug interaction

A number of factors were identified from the qualitative interviews and the literature review as being important in the decision to intervene on a prescription. The pharmacists were presented with a number of statements and asked to indicate, on a five point scale, the importance of the factors in their decision to take action and intervene on a prescription (question 13).

The degree of importance attached to each statement is presented in Table 36 below. The table also presents mean scores for each statement giving an overall indication of the importance of the statement.

The factors considered very important were the severity of the interaction, if the patient was likely to worry about the interaction, and the pharmacists' liability. Factors considered important were the ability of the pharmacist to suggest an alternative therapy and if the prescription was a repeat prescription. The pharmacists considered the approachability of the prescriber, how busy they were at the time and if the patient was in a hurry or not, as neither important nor unimportant. They indicated that financial loss as a result of the intervention was not important.

Table 36 Factors important in deciding to take action when presented with a prescription which produces a drug interaction

Statements (Scores)	Very important (1)	Important (2)	Neither important nor unimportant (3)	Not important (4)	Of no importance at all (5)	Median Score
• If the patient is likely to worry about the interaction	40.3%	43.2%	9.0%	3.2%	2.9%	2.0
• If you got the impression that the patient was in a hurry or not	4.3%	22.6%	31.0%	23.1%	17.0%	3.0
• The severity of the interaction	86.0%	11.3%	0.2%	0.5%	0.7%	1.0
• If the prescriber was approachable or not	10.0%	24.2%	29.6%	19.9%	14.5%	3.0
• If you were confident in suggesting an alternative therapy	17.6%	43.7%	26.0%	5.2%	4.5%	2.0
• How busy you were at the time	5.4%	18.1%	36.9%	22.2%	15.6%	3.0
• If the prescription item you were dispensing at the time was a repeat	8.4%	52.3%	22.4%	12.2%	1.8%	2.0
• Your liability	44.6%	31.2%	15.8%	3.8%	2.5%	2.0
• If your intervention meant that you would lose out financially	3.8%	5.2%	25.3%	22.9%	40.3%	4.0

The pharmacists were also given the opportunity to make further comments. These provided further qualitative data which clarified the pharmacists' responses. The severity of the interaction was considered very important in deciding to intervene on a prescription. The comments relating to the severity of the interaction confirmed the qualitative findings that the pharmacists had to make decisions concerning the seriousness of the drug interaction, the likelihood of it occurring and the safety of the patient.

> Incidence / likelihood of interaction occurring. (important)
>
> Whether interaction is medically potentially serious e.g. hypocalcemia or just a nuisance e.g. dry mouth. (important)
>
> If it was a significant interaction (very important)
>
> That the patient gets the best therapy (very important)
>
> Safety of patient (very important)

The statement concerning the approachability of the GP was further expanded by the following comments. These indicated that past experience of discussing drug interactions with GPs and the availability of the GP was important in decisions to intervene on a prescription and contact the GP. The ability of the GPs to divert clients away from the pharmacy was also raised as a consideration. Once again these additional comments confirmed the findings from the qualitative interviews.

> Whether GP was available (important)
>
> Whether the doctor could be contacted out of hours (very important)
>
> Prescriber will divert business to rival (neither important nor unimportant)
>
> Past experience with the same interaction and GP (very important)

The comments also added to the study by explaining that interventions on prescriptions did not always necessitate contact with the doctor. As the comment below demonstrates that taking action did not necessarily mean contacting the doctor. Pharmacists would

get as much information as possible from the patient to try and establish if the GP should be contacted or not.

> Taking action may not always mean contacting the prescriber, sometimes just a conversation with the patient can surface.

6.4.3.7 Relationships with local doctors

The qualitative interviews drew attention to a number of themes which were important in the relationship that pharmacists had with the local doctors (see chapter 5). These themes were presented to the pharmacists in a series of statements. The pharmacists were asked to indicate the extent of their agreement with the statements on a five point likert scale (question 19). The results of these responses are presented in Table 37.

Pharmacists' relationship with the local doctors seemed to be influenced by the relationship that the doctors have with their patients compared to the pharmacist relationship with their clients. There are two dimensions to this. Firstly, the vast majority of the pharmacists agreed that having faith in the doctor helps with the overall success of a treatment and the vast majority indicated that they must be careful not to make the patient lose confidence in the doctor. Secondly, the pharmacists agreed that the local doctors were able to influence patients greatly and that they were able to direct people away from the pharmacy. The difference in the relationships between the doctor and patient and the pharmacist and client seem to stem from how much information there is available on the person. The vast majority of the pharmacists agreed that the medical records were more detailed than the PMRs held in the pharmacy and just under 40% agreed that the local doctors know patients more personally than the pharmacists.

The difference in the relationships between the doctor and patient and pharmacist and client, is most apparent in the provision of advice concerning drug interactions. Over half of the pharmacists indicated that they had to be careful in this situation that the patient does not go back to the doctor and demand something else because the pharmacist said so.

Other dimensions to the relationship between the pharmacist and the local doctors include knowledge concerning drug use. Pharmacists were unsure whether they knew as much about drug use as doctors. They were unsure whether the local doctors

thought that drug interactions were important. Thus they were unsure if the local doctors wanted prescribing advice from them. Opinions concerning the separation of prescribing and diagnosis were mixed with just over 40% agreeing that we could separate the two decisions.

One theme which emerged from the interviews was the ability of local doctors to be able to identify if pharmacists were in breach of their terms of service. Thirty percent of the respondents agreed with the statement that: *the local doctors can tell if I am in breach of my terms of service*. The majority, however, neither agreed or disagreed with this statement.

Table 37 Features of pharmacist and GP relationships

Statements (Scores)	Strongly agree (1)	Agree (2)	Neither agree or disagree (3)	Disagree (4)	Strongly disagree (5)	Median Score
• I think the doctor's medical notes are more detailed than my patient medication records	48.6%	32.4%	14.0%	3.8%	0.7%	2.00
• The local doctors can not direct people away from this pharmacy	21.3%	25.8%	16.7%	25.8%	9.5%	3.00
• The local doctors can tell if I am in breach of my terms of service	3.6%	27.4%	43.7%	17.6%	5.0%	3.00
• Most of the local doctors do not know more about drug use in patients that I do	5.9%	26.5%	44.3%	20.1%	1.8%	3.00
• I have to be careful when I tell a patient about a possible drug interaction so that they don't go back to the doctor and demand something else because I said so	10.6%	45.0%	19.9%	20.4%	3.4%	2.00
• Having faith in the doctor helps with the overall success of treatment	36.7%	55.4%	6.8%	0.5%	-	2.00
• Doctors have a great deal of influence over patients	43.9%	50.7%	4.3%	0.5%	-	2.00
• The local doctors know people more personally than I do	13.3%	24.7%	30.8%	25.1%	5.2%	3.00
• You can separate the decision of prescribing from the decision of diagnosis	8.1%	38.2%	29.4%	19.7%	2.0%	3.00
• The local doctors want advice on prescribing from me	2.5%	26.5%	36.0%	26.5%	7.5%	3.00
• In counselling patients I have to be careful not to make the patient lose confidence in their doctor	40.0%	50.9%	5.2%	2.5%	0.2%	2.00
• The local doctors think drug interactions are not all that important	1.8%	12.7%	30.3%	42.3%	12.2%	4.00

6.4.3.8 Interventions on prescriptions in context

A theme which emerged form the qualitative interviews and the literature reviewed earlier was the importance to pharmacists of relationships with local doctors (see chapter 2 and chapter 5). This theme seemed to be important both in terms of provision of extended services and also in terms of intervention on prescriptions. Question 10 explored the effect of the relationship in terms of provision of services (see section 6.4.2). A vignette was constructed which varied this relationship using 4 scenarios and explored the effect of the relationships on the likelihood of the pharmacist to intervene on different types of prescriptions (see question 12).

The pharmacists were asked to consider each of the scenarios of varying relationships and to indicate on a five point scale, if they would intervene and contact the doctor when presented with certain prescriptions. The effect of workload which was explored earlier was taken into account in the scenarios and kept constant.

In scenario 1, the pharmacist gets on very well with the local doctor. In scenario 2, the pharmacist does not know the doctor who has issued the prescription. In scenario 3, the relationship between the pharmacist and the doctor who has written the prescription is not good since there have been several disagreements in the past. Scenario 4 also explores the effect of the clients expectations on how likely the pharmacist is in intervening on the prescription.

The different types of prescriptions which require an intervention by the pharmacists are a repeat prescription without a signature, a non-addict prescription for a controlled drug without a signature, a repeat prescription which produces a minor drug interaction on the computer, a new prescription which produces a major drug interaction on the computer, and a prescription for an outmoded drug therapy to which there is a better alternative. These prescriptions require interventions either increasingly on a legal basis or increasingly on a clinical basis.

Table 38 below presents the overall aggregate score under the 4 different scenarios of the likelihood of pharmacists to intervene on the prescriptions and contact the doctor when presented with the five different types of prescriptions. As a guide, a score of 4 indicates that the pharmacists would contact the doctor, a score of 8 indicates that the

pharmacists might contact the doctor, a score of 12 indicates that the pharmacists do not know if they would contact the doctor, a score of 16 indicates that the pharmacists might not contact the doctor and a score of 20 indicates that the pharmacists would not contact the doctor.

Table 38 Overall likelihood of pharmacists to intervene on 5 different types of prescriptions (scores: 4=would contact, 8=might contact, 12=don't know, 16=might not contact, 20=would not contact)

	A repeat prescription without a signature	A non-addict prescription for a controlled drug without a signature	A repeat prescription which produces a minor drug interaction on the computer	A new prescription which produces a major drug interaction on the computer	A prescription for an outmoded drug therapy to which there is a better alternative
Total	440	439	438	440	438
Mean	11.7	5.2	13.7	4.4	15.3
Std deviation	5.3	3.4	5.1	1.3	4.5

The aggregated responses to each of the different prescriptions were significantly different (Friedman test: $\chi 2 = 1592.09$, n=437, df=5, $p<0.001$). Table 39 presents the results of comparisons using the Wilcoxon matched pairs signed rank test which give an indication of where the differences in the responses lie and thus enables the interpretation of the findings. Prescriptions which required legal interventions were those without a signature. The pharmacists indicated that they would intervene and contact the doctor, however, they were more likely to do this with a prescription for a controlled drug than a repeat prescription. In terms of prescriptions which required clinical interventions, pharmacists were less likely to contact doctors on repeat prescriptions which produced minor drug interactions and more likely to contact doctors on new prescriptions which produced major drug interactions. Overall pharmacists were most likely to intervene and contact the doctor regarding prescriptions with a major drug interaction and for a controlled drug which did not have a signature. Pharmacists were least likely to intervene and contact the doctor on prescriptions for outmoded drug therapies to which there are better alternatives.

Table 39 Comparisons between the likelihood of intervening on the different types of prescriptions using the Wilcoxon Matched Pairs Signed Ranks Test

Comparison	z value	Significance	Direction of differences
• Interventions on a prescription without a signature v interventions on a CD prescription without a signature	-15.75	< 0.001	Pharmacists are more likely to intervene on CD prescriptions without a signature
• Interventions on a prescription without a signature v interventions on a prescription with a minor drug interaction	-6.29	< 0.001	Pharmacists are more likely to intervene on prescriptions without a signature
• Interventions on a prescription without a signature v a prescription with a major drug interaction	-16.35	< 0.001	Pharmacists are more likely to intervene on prescriptions with a major drug interaction
• Interventions on a prescription without a signature v interventions on a prescription for an out dated therapy	-10.30	< 0.001	pharmacists are more likely to intervene on a prescription without a signature
• Interventions on a CD prescription without a signature and a prescription with a minor drug interaction	-17.14	< 0.001	Pharmacists are more likely to intervene on CD prescriptions without a signature
• Interventions on a CD prescription without a signature and a prescription with a major drug interaction	-4.51	< 0.001	Pharmacists are more likely to intervene on CD prescriptions without a signature
• Interventions on a CD prescription without a signature v interventions on a prescription for an out dated therapy	-17.23	< 0.001	Pharmacists are more likely to intervene on CD prescriptions without a signature
• Interventions on a prescription with a minor drug interaction and a prescription with a major drug interaction	-17.72	< 0.001	Pharmacists are more likely to intervene on a prescription with a major drug interaction
• Interventions on a prescription with a minor drug interaction and a prescription for an outdated therapy	-5.31	< 0.001	Pharmacists are more likely to intervene on a prescription with a minor drug interaction
• Interventions on a prescription with a major drug interaction and a prescription for an out dated therapy	-17.80	< 0.001	Pharmacists are more likely to intervene on a prescription with a major drug interaction

Table 40 below presents the effect of each scenario on the likelihood of the pharmacist intervening and contacting the doctor. Since there are 5 types of prescriptions as a guide a score of 5 indicates that the pharmacist would contact the doctor, 10 indicates that they might contact the doctor, 15 indicates that the pharmacists are unsure if they would contact the doctor, 20 indicates that the pharmacists might not contact the doctor, and 25 indicates that the pharmacists would not contact the doctor.

Table 40 Overall likelihood of pharmacists to intervene on prescriptions with varying relationships with GPs (Scores: 5=would contact, 10=might contact, 15=don't know, 20=might not contact, 25=would not contact)

	Scenario 1: get on well with doctor	Scenario 2: don't know doctor	Scenario 3: disagreed with doctor	Scenario 4: client is in a rush to go
Total	440	440	438	440
Mean	12.50	11.24	13.04	13.44
Std deviation	3.36	3.28	3.63	3.61

Across all of the scenarios the scores indicated that the pharmacists might intervene, however, significant difference were observed (Friedman test $\chi 2 = 230.66$, n=438, df=3, $p<0.001$). Table 41 presents the results of the Wilcoxon matched pairs signed ranks test, which allows the interpretation of the findings.

Table 41 Comparisons between interventions on prescriptions with varying relationships between pharmacists and GPs using the Wilcoxon Matched Pairs Signed Ranks Test

Comparison	z value	Significance	Direction of differences
• Intervention with good relationship interventions with no relationship	-9.41	< 0.001	Pharmacists are more likely to intervene when there is no relationship with the doctor
• Interventions with good relationship v interventions with bad relationship	-4.69	< 0.001	Pharmacists are more likely to intervene when there is good relationship
• Interventions with good relationship v interventions when the patient is in a rush to go	-7.66	< 0.001	Pharmacists are more likely to intervene when there is good relationship
• Interventions with no relationship v interventions with bad relationship	-11.65	< 0.001	Pharmacists are more likely to intervene when there is no relationship
• Interventions with no relationship v interventions when the patient is in a rush to go	-13.35	< 0.001	Pharmacists are more likely to intervene when there is no relationship
• Interventions with bad relationships v interventions when the patient is in a rush to go	-3.63	< 0.001	Pharmacists are more likely to intervene when there is bad relationship

Interestingly overall, pharmacists were most likely to intervene and contact the doctor whom they did not know at all, then doctors with whom they had a good relationship, then doctors with whom they had a bad relationship. People who were in a rush to go had the least effect on the likelihood of interventions.

Table 42 summarises the effect of relationships with local doctors on the likelihood of the pharmacist to intervene and contact the doctor on each of the different types of prescriptions. It can be seen that in general for repeat prescriptions without a signature the pharmacists are less likely to intervene if they know the doctor and get on well with him / her. They are most likely to intervene if they do not know the doctor.

For controlled drug prescriptions the pharmacists indicated that they would intervene on the prescription, which seems to be regardless of the type of relationship with the doctor. This pattern is also observed for prescriptions which produce a major drug interaction.

In terms of prescriptions which produce a minor drug interaction, pharmacists indicated that they were unsure if they would intervene or not. In terms of a prescription for an outmoded therapy, generally pharmacists would not intervene on the prescription. They indicated that they were less willing to do so in situations where the client was in a hurry, or that they had bad relationships with the doctor or that they did not know the doctor. They were most likely to intervene on these prescriptions where they got on well with the doctor.

Table 42 Interventions when presented with different types of prescriptions under 4 scenarios (Scores: 1=would contact, 2=might contact, 3=don't know, 4=might not contact, 5=would not contact).

Prescriptions	Scenarios: Data presented as Median scores			
	Scenario 1: get on well with doctor	Scenario 2: don't know doctor	Scenario 3: disagreed with doctor	Scenario 4: client is in a rush to go
• A repeat prescription without a signature	4.0	1.0	3.0	4.0
• A non-addict prescription for a controlled drug without a signature	1.0	1.0	1.0	1.0
• A repeat prescription which produces a minor drug interaction on the computer	4.0	3.0	4.0	4.0
• A new prescription which produces a major drug interaction on the computer	1.0	1.0	1.0	1.0
• A prescription for an outmoded drug therapy to which there is a better alternative	3.0	4.0	5.0	5.0

6.4.4 Independent decisions regarding the issue of prescriptions

One of the suggested roles for pharmacists is to make independent decisions regarding specific drug therapy once a diagnosis has been made or once a general treatment is suggested. Although such a role has not been implemented to any extent in practice, there are situations that arise in which pharmacists have to make independent decisions regarding drug therapy. The extent of how far pharmacists were willing to intervene independently on a prescription was investigated using a vignette about substitution of an antibiotic which was derived from the interviews (see question 23 and chapter 5). Certain elements considered important within the vignette were varied using six different scenarios. There are no specific guidelines for action in these situations and thus pharmacists accompanying comments are considered very important. The general vignette is presented below followed by an explanation of the scenarios.

> ***General vignette.*** *It is 4.30 p.m. on Saturday afternoon, a patient comes in with a prescription for a branded antibiotic. The patient explains that* ***all other pharmacies in the vicinity have been contacted by phone and none of them stock this brand****. The patient has not taken the medicine before and needs to take the medicine that day.* ***You are satisfied that the request is genuine and that the patient needs to take the medicine immediately.***

The vignette went on to explain that the branded antibiotic was not available in the pharmacy either and the pharmacist was placed into a situation where a decision had to be made regarding the issue of the prescription. Scenario 1 placed the pharmacist in a situation where the branded antibiotic could be substituted by its generic equivalent antibiotic. Scenario 2, however, placed the pharmacist in a situation where the branded antibiotic could be substituted by an equivalent but different branded antibiotic. Scenario 3 and 4, introduced the relationship with the prescriber. In scenario 3 the relationship was very good and substitution of this nature had been approved in the past. Conversely in scenario 4 the relationship with the prescriber was not good. In scenario 5, the pharmacists were placed in a situation in which they had tried to contact the local doctors, however, they were unable to contact the local doctors and they had to make a decision themselves. Scenario 6, introduced the concept of the cost of the equivalent branded antibiotic.

The pharmacists were presented with a choice of possible actions as well as an opportunity to explain their reasons or give other actions.

Possible actions:

- **Dispense the alternative medicine, without telling the patient**
- **Explain the situation to the patient and then dispense the alternative medicine, if he / she agrees**
- **Try to contact the doctor, then substitute the alternative medicine, if he / she agrees to amend the prescription**
- **Tell the patient that the prescription must be obtained from another pharmacy**
- **Offer to order the branded medicine for the following Monday**

Table 43 overleaf presents the results from this question. Differences in the responses were tested for significance using the Friedman test for three or more related sample. The differences were significant ($\chi^2 = 380.76$, n = 398, df = 5, $p < 0.001$).

Table 43 Pharmacists' actions concerning the issue of a prescription under the conditions of the six scenarios

Scenarios (Scores)	Dispense alternative, without telling the patient (1)	Explain the situation to the patient, then dispense alternative (2)	Contact the doctor, then substitute alternative (3)	Prescription must be obtained from another pharmacy. (4)	Order the branded medicine for the following Monday (5)	Median score
Scenario I. *On checking you find that you do not have the brand in stock either.* ***You do have the generic alternative in stock.***	0.5%	40.0%	56.3%	0.5%	0.9%	3.0
Scenario II... *this time* ***you do not have the generic equivalent in stock either, but you do have a very similar antibiotic,*** *in the same class as the prescribed antibiotic with the same spectrum of action, there is no difference in the cost of the two antibiotics.*	0.5%	3.4%	72.4%	10.9%	11.8%	3.0
Scenario III.... *but the prescription is* ***written by a doctor whom you get on with very well and who has approved of this type of substitution in the past.***	3.4%	37.3%	51.4%	3.2%	3.6%	3.0
Scenario IV.... *but the prescription is* ***written by a doctor whom you have had several disagreements with in the past.***	0.5%	2.9%	63.3%	15.8%	15.6%	3.0
Scenario V.... *you try and call the doctor, but there are* ***no doctors on the premises.***	0.9%	21.5%	9.3%	32.4%	28.5%	4.0
Scenario VI.... *but the alternative antibiotic is* ***£10 more expensive*** *than the prescribed antibiotic.*	0.9%	7.0%	48.4%	16.7%	23.3%	3.0

6.4.4.1 Summary of the findings from Scenario 1

*I) On checking you find that you do not have the brand in stock either. **You do have the generic alternative in stock**.*

In scenario 1, 40% of the pharmacists indicated that they would substitute the generic antibiotic if the patient agreed. The pharmacists made additional comments which pointed to some of their concerns and reasons for choosing to substitute.

Patient needs and the urgency of the situation were the most frequently mentioned theme. Another justification of the pharmacists decision to substitute was the lack of availability of the prescriber on a Saturday afternoon. Also the comments pointed to the consideration of equivalency of the generic and branded antibiotic and the fact that the substitution was not clinically significant. Some of the comments also hinted at the concerns of the pharmacists and further qualified their decision to substitute. The majority of the pharmacists qualified their action of substitution by indicating that this action was a last resort and that they were concerned about their terms of service and their liability and hence would contact the doctor on Monday to get the prescription amended. Some pharmacists also emphasised that they would only substitute if the patient was agreeable. Comments made by the pharmacists illustrate some of the themes:

Patient needs and availability of the prescriber

> The patient requires immediate medication and its usually impossible to get hold of the Dr on a SAT P.M. who would authorise the alternative in any case.

Equivalency

> No real difference in antimicrobial activity would explain situation to Dr on Monday

Clinical significance

> I consider this a minor change in an emergency situation with no clinical significance.

Last resort and terms of service

> There is a degree of immediacy, which justifies going outside my terms of service. I would make sure, however, that I told patient of pharmacies further afield where he might obtain branded product, if necessary would telephone and check availability

Liability

I will only do 2, if I am confident that there will be no come back i.e. depends on the patient DR medication etc.

Contact Doctor on Monday

It is more important for the patient I would contact the Dr on Monday to get an amended prescription

If patient agreed

most people would be more than happy with this - if they were not I would not dispense it.

Fifty six percent of the pharmacists indicated that they would try and contact the doctor in the first instance and then substitute the alternative if he/she agrees. They justified this procedure in terms of patient needs, implying that despite the inconvenience in contact the doctor they were willing to try at all costs. Several of the pharmacists, however, indicated that although this would be their first course of action they were prepared to substitute if the doctor was not available. Other comments indicated that contacting the doctor was the only course of action due to the terms of service of the pharmacist and the legal liability issues.

Several other comments pointed to consideration in deciding to substitute or not, these included the urgency of the prescription and the relationships between pharmacists, doctors and patients.

Patient needs

The patient needs the medicine that day and I would do my utmost to fill the prescription

Options one and 2 are not legal therefore I would not consider them I always do my best for the patients so 4 and 5 not considered. Despite Saturday P.M. it is usually possible to contact a prescriber even if it takes a little more time and effort

Contact Doctor in the first instance and then suggest substitution / if not available then substitute

you have shown the patient that you have explored all contingencies - I would endorse script prescriber contacted

Most patients would rather start course of treatment on Saturday rather than wait until Monday. substitution in this case is unlikely to cause a problem

If doctor not available would tell the patient of the situation and if he/she agrees dispense generic and get prescription amended

If unable to contact doctor give alternative and contact doctor on Monday

or 2 if can't contact Dr, its better the patient gets something than wait until Monday.

Legal liability and terms of service

Liability and breaking terms of service without consent of GP the substitution would be illegal

At the present time it is not within terms of contract to substitute without the DR's knowledge.

Cannot claim a branded drug from the PPA unless supplied a "PC" authorisation would have to be supplied

My action is in line with my NHS contract

Standard procedure

Degree of urgency

Prompt treatment is indicated, but the date the treatment was prescribed may be very relevant. Same day script and if 3 is inconclusive then option 2. A weekend prescription date indicates referring patients to their doctor.

Relationships with patients and doctors

Action would depend on knowing patient and doctor

I do not have good enough relationship with practitioner to substitute without permission

A pharmacist has to think about his personal liability if substituting If I knew the doctor well I may opt for option 2.

In case the doctor thinks you are trying to make more money , or do not realise the difference in the two alternatives

The other possible actions only accounted for 1.9% of the responses and none of the pharmacists made additional comments.

6.4.4.2 Summary of the findings from Scenario 2

II) The same general scenario, but this time <u>you do not have the generic equivalent in stock either, but you do have a very similar antibiotic</u>, in the same class as the prescribed antibiotic with the same spectrum of action, there is no difference in the cost of the two antibiotics.

Scenario 2 placed the pharmacists in a similar situation, but required the pharmacists to substitute a different antibiotic as opposed to a different brand. There was a significant difference in the responses given for scenario 2 as compared to scenario 1 (Wilcoxon Matched pairs Signed rank test $z=-12.38$, $n=430$, $p<0.001$). In general larger scores were given for this scenario, indicating that the pharmacists were not as willing to substitute the similar antibiotic.

Compared to scenario 1, where 40% of the pharmacists were willing to substitute, in this scenario less than 4% of the pharmacists indicated that they were willing to substitute a different antibiotic. The majority of the pharmacists (72%) indicated that they would contact the doctor and then substitute if he/she agrees. Eleven percent of the pharmacists indicated that they would advise the patient that the prescription had to be obtained from another pharmacy, a further 12% indicated that they would offer to order the prescription for the following Monday.

The comments made implied that some of the pharmacists thought that contacting the doctor in this instance was in the best interest of the patient. As opposed to scenario 1 when many pharmacist said that they would substitute if the doctor could not be contacted, there were only a few pharmacists who would substitute in this case if the doctor was not available. Instead these pharmacists would try harder to locate the particular antibiotic. The issue of contacting the doctor and legal liability and complying with the terms of service seemed to be even more important in this scenario. Many of the pharmacists indicated that this was the case since the substitution now involved a different drug entity and the doctor could have chosen the particular antibiotic to suit the patient.

Contact with doctor

If Doctor could not be contacted suggest patient gets in touch with emergency doctor

Same answer as above (The patient needs the medicine that day and I would do my utmost to fill the prescription) I would not ponder the patient to another pharmacy they are ill probably tired and fed up.

If doctor was unavailable I would be unwilling to dispense the alternative

Would not substitute unless the prescriber had been contacted

If not possible to contact Dr ring round for alternative or brand at other pharmacies

I would do 3, but if the GP is not available I would contact more pharmacies before selecting 2 or 5.

Legal liability

Patient need high - need Dr sig to cover legally

I would not be willing to substitute a drug specified even though I thought it would be OK. Legal liability

Terms of service

Do not want to be in breach of my terms of contract and therefore would only dispense alternative if doctor agreed

It is on terms of service to supply what is on prescription

To get approval from the doctor

Although there are similarities between the alternative it is not the same thus to give it would be changing the doctors prescription

Not in a position to substitute

Not similar antibiotics

Although there are similarities between the alternative it is not the same thus to give it would be changing the doctors prescription

At this time I feel substituting even a similar antibiotic is not acceptable to the doctor or the patient without prior approval

Not willing to substitute different antibiotic without Dr's approval

I would not want to give a different drug without consulting the GP first

Would want confirmation from GP if substitution to another drug

Different drug must have doctors permission, if doctor not available then offer to obtain usually a doctor will be on duty (duty doctor)

Must try and contact GP if there is a difference

Would want change rubber stamped

Doctors knowledge of patient

The choice of antibiotic is based on doctors knowledge of patients condition

This would be clinically significant and I don't have the information to make the decision

Possible sensitivity history and risk of upsetting the doctor.

I do not have patient's history to give opinion on substitution

The pharmacist does not know the exact reasons why the doctor has prescribed the particular antibiotic

Reasons for referring people to another pharmacy or offering to order the medicine for Monday included:

I am assuming doctor not available I work in greater London where there are substantial dispensing pharmacies further away so I would direct patient accordingly and also offer to telephone and check availability

Without knowing the diagnosis from the doctor, I would not offer a different product

I wouldn't want the responsibility if I swapped for a completely different drug

I would never substitute another drug, even if it has the same spectrum of action. This is always the case.

It would be inappropriate to dispense an alternative prior to contacting the prescriber

If this caused stress I would go to 4 (obtain from another pharmacy)

I can not substitute without authorisation

You are open to trouble if the patient receives different active ingredient and then reacts

6.4.4.3 Summary of findings from Scenario 3

III) The same situation as in II), but the prescription is ***written by a doctor whom you get on with very well and who has approved of this type of substitution in the past.***

In this scenario, the pharmacists are placed in a position where substitution of a different antibiotic is a possibility. However, they have a good relations with the doctor who has issued the prescription, and who has approved of this type of substitution in the past. Significant differences were observed in the responses provided by scenario 3 as opposed to scenario 2 (Wilcoxon Matched pairs signed rank test $z=-11.98$, $n=435$, $p<0.001$). The responses were lower for scenario 3 than for scenario 2 indicating that the pharmacists were more willing to substitute the antibiotic in this situation. The proportion of pharmacists who indicated that they were prepared to substitute rose from 3% to 37%. Just over 50% would still contact the doctor in the first instance and 3% of the pharmacists opted for each of the other options.

The comments made in addition to the response of substitution, almost exclusively implied that the pharmacists would still make sure that the doctor knew about the substitution and agreed to amend the prescription.

> Again I would try to contact the Dr. If a verbal agreement exists between Dr and Myself for substituting I would be happy to go with 2 and contact Dr on Monday.
>
> I would have to be very sure that there was no other way of treating the patient until Monday
>
> Dr has approved substitution before and this substitution should be very similar
>
> Would contact the doctor on Monday
>
> Usually I would still take action 3, but in certain circumstances I would take action 2 and leave a message to the Dr for Monday morning
>
> Explain the situation to the Dr at the next opportunity and obtain a new prescription
>
> Substitution probably agreed by doctor in such circumstances
>
> I would still get the GP to alter the prx on Monday morning

Will be no professional ethic problem as can clear with GP

Get new prescription from doctor on Monday

I would still inform the Dr after the event

Would contact doctor Monday morning

Ring GP Monday to inform him that you have substituted and get new prx

The comments made with the response of contacting the doctor implied the same concerns as before i.e. liability and terms of service, however, additional comments indicated that some of the pharmacists would be more comfortable if they knew the doctor who had issued the prescription but they would prefer to have clear guidelines in place for this type of substitution:

> I would feel more comfortable about substituting but would still contact the prescriber first
>
> I've never done this , but on Dr's approval I would substitute , but not on patients or my decision
>
> I would still have to contact the doctor unless we had an ongoing agreement to substitute this particular antibiotic due to stock shortage or other reason.
>
> No experience of this situation would like clear and agreed parameters

Other comments indicated that they did not want to take advantage of their relationship with the doctor for the sake of convenience or taking short cuts, since interactions and adverse effects were possible:

> I do not misuse friendship
>
> Even though you know the Dr, this must not make your actions any slacker
>
> Prescriber should be contacted and alternative suggested, in case of any contraindications etc.
>
> Every patient is different and I would not assume to substitute without prescriber's authority
>
> Same as above, familiarity with the prescriber does not alter the situation

6.4.4.4 Summary of findings of Scenario 4

IV) The same situation as in II), but the prescription is <u>written by a doctor whom you have had several disagreements with in the past</u>.

The only variation of scenario 4 from scenario 3 is the relationship with the doctor who has written the prescription. In scenario 4 the doctor is the senior partner of the local practice with whom the pharmacist has had several disagreements in the past. Once again significant differences were observed in the responses from scenario 4 as compared to scenario 3 (Wilcoxon Matched pairs Signed rank test $z=-12.62$, $n=434$, $p<0.001$). The scores for the responses for scenario 4 were generally higher indicating that the pharmacists were less willing to substitute the antibiotic in these circumstances.

The percentage of pharmacists who are willing to substitute fell from 37% to almost 3%. The percentage of pharmacists who would contact the doctor in this scenario rose to 63%. Sixteen percent of the pharmacists indicated that they would tell the person that the prescription must be obtained from another pharmacy and another 16% indicated that they would offer to order the prescription for the following Monday.

Comments relating to contacting the doctor again raised issues to do with legal liability. Other comments indicated that despite the relationship with the doctor, the pharmacists would still try and contact the doctor in the interest of the patient, although they may not be as comfortable:

> Same as III your relationship with GPs should not cloud your actions even if your heart is in your mouth
>
> I would act in the best interest of the patient, whatever the doctor thinks of me
>
> Relationships with GPs not relevant must do what's best for the patient
>
> Relationship with doctor should not influence any action
>
> Disagreements with GPs may mare the way of approach but the patient is not part of this problem - his problem is this issue and should be sorted

Other comments indicated that in this type of relationship there would be no verbal agreement as to substitution in these cases. Also that in this type of relationship the doctor may not agree to change the prescription or be suspicious of the reasons behind substitution.

> In this situation there is obviously no verbal agreement so I cannot go ahead.
>
> The doctor may refuse to change the prx
>
> Permission must be given (medical and contract problems)
>
> Patient would need to be referred to Dr on call.
>
> Ring and give Dr option to substitute or wait.
>
> If GP/Pharmacist relationship is not good then GP is less likely to trust substitution

Other comments however indicated that by contacting the doctor the pharmacist may improve relationships by showing concern for the patient:

> As above and you might gain some respect for trying to help the patient.

6.4.4.5 Summary of findings from Scenario 5

V) The same situation as in II), you try and call the doctor, but there are <u>no doctors on the premises</u>.

In scenario 5 the pharmacists are informed that there are no doctors available on the premises, thus the option of contacting the doctor to some extent is reduced. Once again significant differences are observed between the responses to scenario 4 and 5 (Wilcoxon Matched pairs Signed rank test $z=-4.39$, $n=406$, $p<0.001$). The scores indicated that the pharmacists were more willing to substitute under the conditions of scenario 5. In this scenario 21.5% of the pharmacists indicated that they were willing to substitute the different antibiotic. Nine percent of the pharmacist indicated that they would still try and contact a doctor. Advising people that the prescription had to be obtained from another pharmacy was indicated by 32% of the pharmacists with a further 28.5% offering to order the branded antibiotic for the following Monday.

Once again those pharmacist who indicated that they would be prepared to substitute indicated that they would contact the doctor at the earliest opportunity to inform them of their actions:

> Would on Monday morning contact DR to amend prescription and explain why was substituted
>
> Contact the prescriber at the earliest opportunity
>
> leave message informing doctor of alteration
>
> Phone Drs ASAP to explain situations
>
> Contact Dr later for script to be amended

Other comments indicated that there were other considerations before the pharmacists were willing to substitute the antibiotic.

> Assuming good relationship with doctor
>
> But only if there were no pharmacies in travelling distance. I wouldn't really feel happy about doing it.
>
> Only if the prescription was written the same day or previous day - otherwise 5.

Despite the scenario informing the pharmacists that the doctor was not on the premises and therefore unavailable, contacting a doctor was still chosen by 41 pharmacists. The comments seemed to suggest that it did not matter if that the doctor who had written the prescription could not be contacted at the premises since there were other means of contacting the prescriber. In addition as long as a medically qualified doctor was spoken it did not matter that it was the doctor who had issued the prescription. Thus the pharmacists would try and contact the duty doctor or even advise the clients to go to the accident and emergency department of the local hospital.

> Contact Dr at home
>
> These days most doctors can be contacted by an emergency service. So a doctor could be contacted even when not on premises
>
> Call and speak to the duty doctor or call pharmacies outside the vicinity
>
> Unless prior to verbal agreement (then 2, tell patient)

Always an alternative means of contact even if it includes a wait via a deputising . 4 and 5 would always apply and be discussed with the patient

I would be able to contact the on call Dr and discuss the possible substitution with him, I would collect as much background information as possible for patient before phoning in case I didn't speak to the same GP.

Phone Dr deputising service

I would contact emergency doctor and / or other pharmacies in the area

Keep trying to contact the doctor always one on duty or on call

Ring on call

If no where else would send to local A&E

Comments relating to the other options indicated that the pharmacists were willing to help the patient in securing the antibiotic, by phoning other pharmacies.

Phone around to locate and direct the patient there

One could also phone around to nearest pharmacies to check availability thereby minimising any inconvenience.

4 or 5 depending on what the patient wanted

Patient will need to contact duty doctor or try elsewhere

Phone round to obtain from another pharmacy

I would telephone a well known pharmacy in the area and ensure that they had the medicine

Circumstances dictate. Alternative 5 means a delay in stating treatment, any other action would constitute a breach of NHS contract

6.4.4.6 Summary of the findings from Scenario 6

VI) The same situation as in II), but the alternative antibiotic is £10 more expensive than the prescribed antibiotic.

In scenario 6, the financial considerations are introduced, in that the cost of the alternative antibiotic for substitution is £10 more expensive. The differences between

scenario 5 and 6 were not statistically significant, but implied that the pharmacists were less willing to intervene under the conditions of scenario 6 (Wilcoxon Matched pairs Signed rank test z=-2.60, n=406, p = 0.009).

Seven percent of the pharmacists indicated that they were willing to substitute the alternative antibiotic as opposed to 21.5% in scenario 5. Almost half of the pharmacists indicated that they would contact the doctor in this case, whilst 17% would advise the person that the prescription must be obtained from another pharmacy, and 23% would offer to order the antibiotic for the following Monday.

Comments relating to substitution implied that the cost of the antibiotic bore little significance to some pharmacists in deciding to substitute as long as the prescription was amended:

> The cost is irrelevant in the context of delay in treating a serious infection. I am just as ready to take a financial risk as I am to take a professional one
>
> Only if confident that the Dr will agree to amend prx.
>
> later contact GP explain request another prescription.
>
> It would depend on the likely outcome. If for instance it was a case when the life or future well being of the patient was involved I would supply.

Comments relating to contacting the doctor implied that to some the cost of the medicine was irrelevant to their decision in contacting the doctor and suggesting an alternative. The overriding factors still being the patients' interest and contacting the doctor for approval of the substitution. To others however the cost of the medication was not an immediate issue but a consideration in that they wanted to be sure that the doctor would amend the prescription, so that the pharmacist did not lose out. Many of the pharmacists seemed to be sure that the doctor would amend the prescription and the cost of the antibiotic would not be an issue to the doctor either.

> Cost irrelevant GP must authorise change
>
> Cost does not affect decision. I have loads of out of area contact and in all cases above would try to phone colleagues elsewhere first.

Cost of drug should not be relevant under urgent situations. Doctor would have to approve and decide.

Cost is not an issue

The cost of the medicine does not override my attitude to substitution without prior approval

Phone Dr deputising service

Ring on call

I don't think cost comes into it in an emergency

Get prx amended on Monday to the more expensive brand

Need to be sure GP will alter script else out of pocket substantially

Would need to inform GP that alternative will be more expensive.

Prescription can be amended at a later date to cover extra cost

If Dr unobtainable dispense the alternative and hope Dr will amend Prx on Monday

Don't tell the doctor it is more expensive, he probably wouldn't notice on a Saturday afternoon

Drs often accept extra expense at weekends to avoid call out

6.4.4.7 Overall summary

The main action described by the pharmacists when presented with a situation that requires them to make a decision regarding the medication is to contact the prescriber. This is more prominent in situations where a different drug entity rather than a different brand is required and also more prominent in situations where the relationship with the prescriber is not good. Conversely more pharmacists are likely to make independent decisions regarding substitution in situations in which they got on well with the prescriber who has approved of the pharmacists substitution in the past and in situations when the substitution only requires the change of a brand rather than the change of the drug entity. In these situations, however, instead of seeking the approval of the prescriber the pharmacists tended to substitute only if the patient agreed with the substitution.

When the pharmacists were placed in a scenario where the doctor could not be contacted, most were reluctant to substitute the alternative antibiotic. Instead the other pharmacies were suggested or offers were made to order the prescribed antibiotic for the following Monday. The effect of the increased cost of the antibiotic was to make the pharmacists less reluctant to substitute, the preferred option being to contact the prescriber or offer to order the prescribed antibiotic for the following Monday or to suggest other pharmacies.

These findings are important when considering the role of the pharmacist in medicines management which requires pharmacist to make independent decisions regarding the issue of prescriptions and the patients drug therapy. The vignette above has demonstrated that at the present time pharmacists are generally reluctant to make such independent decisions. Their concerns stem from the fact that they are rarely required to make such decisions and the fact that their contract with the health authority actually forbids such decisions. They also report that there are no clear guidelines and that they are not sure if such decisions would be approved by the local doctors. There are also financial disincentives for pharmacists to make such decisions.

6.5 Summary and Discussion of the Findings

The sample for the survey was taken from the register of pharmacists as opposed to the register of pharmacy premises which had been used in previous pharmacy practice surveys. The experience of using this approach was mixed. Using the register of pharmacists allowed the covering letters to be personalised and it allowed pharmacists to complete the questionnaire in their own time and in their own homes. In addition this was one of the conditions set by the large multiple pharmacy companies before allowing their approval of the survey to be indicated in the covering letter. These issues increased the likelihood of obtaining a high response rate.

A random sample of 1000 full-time community pharmacists was requested from the RPSGB. However, the sample that was received contained community pharmacists regardless of the extent of their practice. In addition it was found that the register of pharmacists contained many inaccuracies. There were many pharmacists who could not be contacted at their registered address either because they had moved, they had died

or that they were no longer working in community pharmacy. Although these pharmacists can be legitimately removed from the sample size, since they are not deliberate non-responders, the are implications on the sampling frame which seems to be incomplete and inaccurate.

A great effort was made to increase the number of responses and to correct the inaccuracies in the original sampling frame. Three mailings and a telephone call were made to the non-responders. The telephone numbers of all non-responders were sought through using national residential telephone directories. The telephone calls did not produce a large number of responses. However, they cast significant doubts on the original sampling frame. There were many pharmacists who could not be contacted at their registered address and thus they would not have received the questionnaire. In addition there were many pharmacists who indicated that they only work occasionally in community pharmacy and thus they did not consider themselves eligible to complete the survey. A list of all community pharmacist who paid full professional fees was then examined to see if it contained the names of the pharmacist in the original sampling frame. There were many pharmacists in the original sample who did not appear on this list. Thus the original sampling frame was reduced significantly. The number of eligible pharmacists in the sample was 759, the number of eligible responses received was 442. This corresponded to a response rate of 58.2%.

Attempts were also made to determine how representive the responses were of the population of community pharmacists. These attempts included comparisons of the responders with known national data concerning community pharmacists such as gender, age and employment status. Comparisons were also made between responders and non responders. Only small difference existed implying the responders were representative of the whole population of community pharmacists at least on the variables that were used for the comparisons.

It was interesting to find that employee pharmacists tended to be the younger, female pharmacists. Their employers were the larger multiple pharmacy companies. These companies were mainly situated in town or city centres and reported their workload to be very busy both in terms of OTC sales and prescriptions dispensed. These pharmacies were also more likely to employ two or more pharmacists and qualified technicians.

Fifty five percent of the pharmacists reported being involved in the provision of at least one of the extended role services. Health promotion services, provision of compliance aids and needle exchange services were the most frequently reported services that were provided. In contrast involvement in provision of diagnostic testing and prescribing advice was reported to be low. The extended role services were mainly initiated and supported by the pharmacists and their own companies as well as the health authorities.

The most important factors in determining the setting up and provision of extended role services, were reported to be additional training, and remuneration. Demand for the services, both by the public and the local doctors was considered important, as was the presence of a facilitator who could initially set up the services. It was interesting to note that the pharmacists did not view the delegation of dispensing activities to pharmacy technicians as an important factor in the establishment of extended role services.

The relative importance of the factors discussed above were investigated using vignettes. It was found that pharmacists were unwilling to provide the services suggested if they received training only. If additional payments as part of the terms of service was introduced, they were more willing to provide the services. However, if the local doctors were opposed to these services, the pharmacists became very unwilling despite receiving training and additional payments. This trend was most obvious with clinical services, as opposed to health promotion services based in the pharmacy.

Extension of the current role of the pharmacist was measured in terms of their pro-activity in advising patients and interventions on prescriptions. The pharmacists estimated that on each prescription and non-prescription medicines, they provided advice between 10-20 times per day. Important factors in provision of advice on prescription medicines included the doctor-patient relationship, how important pharmacists thought the problem was and, people's expectations and demand for advice. Several vignettes were designed to measure the relative importance of the factors discussed above. It was found that workload exerted a great influence on the pro-activity of the pharmacists. The busier the pharmacists were, especially in terms of

prescription workload the less likely they were to provide pro-active advice. They were least likely to provide pro-active advice when they sensed that the person was in a rush to go and did not have time for a consultation. Pharmacists also seemed to have beliefs about what type of person needed advice. For example people who asked for a product by name were not likely to receive pro-active advice, which was also the case with people who brought in a repeat prescription. Conversely people who brought in a prescription that they had not had before and those who asked for a recommendation were more likely to receive pro-active advice.

The pharmacists reported that they made between 1-6 clinical interventions per week regarding drug interactions on prescriptions and 4-20 management interventions regarding the clarification of prescriptions. The factors considered most important included the severity of interactions which required intervention, the ability of the pharmacists to suggest an alternative and the relationship with the local doctors. Vignettes were designed to investigate the relative importance of some of the factors. The relationships with the local doctors produced mixed results. Pharmacists were most likely to intervene on prescriptions which had been written by doctors that they did not know, followed by prescriptions which had been written by doctors that they get on well with, followed by prescriptions written by doctors that they had several arguments with. Pharmacists were most likely to intervene on legal issues rather than clinical issues. Thus they would be more likely to contact the doctor regarding an unsigned prescription for a controlled drug, rather than a prescription which produced a major drug interaction. This was the case regardless of the relationship with the local doctors.

The final element of the extended role measured in this investigation, is the ability of the pharmacists to make independent decision regarding the issue of prescriptions. This was measured using a vignette which required pharmacists to substitute an alternative antibiotic on a prescription. Pharmacists indicated that they would contact the prescriber in the first instance, since it was against their terms of service to substitute a different medicine on a prescription. In general, however, they were more willing to substitute a generic equivalent antibiotic, rather than a different antibiotic. If they had the doctor's approval for this type of substitution they would be more willing to substitute a different antibiotic. The higher cost of the antibiotic did not have a

statistically significant effect on the pharmacists' willingness to intervene on the prescriptions.

The use of vignettes in this investigation seems to have been successful since they have been sensitive enough to investigate the subtle differences revealed in the qualitative interviews in a quantitative way. There are two further points of discussion relating to the methodology. Firstly there were multiple tests and multiple comparisons within the tests. This makes it more likely to observe statistically significant differences produced by chance. To combat this more conservative p values should be considered. The p values observed however were all much lower than the conventional p value of 0.05, thus the likelihood of the differences being due to chance were low. This points to the success of this method in the investigation and to the methodology that combined the findings of the qualitative interviews with the quantitative questionnaire. Chapter 7 further tests this approach by investigating the effect of the pharmacists' attitudes as measured by the statements on the pharmacists' reported activities.

CHAPTER 7 ADVANCED ANALYSIS OF THE FINDINGS OF THE QUESTIONNAIRE

7.1 Introduction

The previous chapter presented the descriptive statistics and univariable analysis regarding the questionnaire. In this chapter further multivariable analysis firstly in the form of factor analysis and later in the form of multiple regression will be undertaken with a view to exploring relationships between pharmacists' opinions, attributes and the pharmacists' reported behaviour in terms of interventions on prescriptions, advice giving and involvement in extended role activities.

7.2 Factor analysis

7.2.1 Introduction

The use of factor analysis, as explained in chapter 4, was employed to reduce the data which represented the pharmacists' opinions by elucidating underlying themes in over 50 statements. The principles of factor analysis are described in section 4.7.3. This section presents the initial stages and results of the factor analysis employed in this project.

The initial stages of factor analysis include, preparation of the data and an assessment of the suitability of the data for factor analysis. Section 4.7.3 provides a detailed account of these processes. The initial examination of the data suggested that factor analysis can be carried out on the statements, since there are a large number of cases (316) compared to variables to be analysed (28) and that there are a number of correlations between the statements and that the correlation matrix are acceptable for factor analysis.

The next step was factor extraction which involved deciding the number of factors necessary to represent the statements and the methods of factor analysis. Two methods of factor analysis, principal-components and principal-axis factoring were employed whose difference is discussed in section 4.7.3. In deciding how many factors to keep, the percentage of total variance explained by each factor was examined (see Table 44 and Table 45). There are two main criteria used for deciding which factors to exclude: the Kaiser's criterion and the scree plot test. The Kaiser's criterion selects those factors which have Eigenvalues of greater than one. For the data set analysed here many of the variables had Eigenvalues of greater than one. Therefore the scree test was used (see figure 2 and 3). The factors to be retained are those which lie before the point at which the Eigenvalues seem to level off. In this analysis the Eigenvalues level off at 7, implying 6 factors should be extracted.

Table 44 Initial statistics: principal-component analysis

Variable	Communality	Factor	Eigenvalue	Pct of Var.	Cum Pct
TRAINING	.37102	1	3.37224	12.0	12.0
PUBDMAND	.64934	2	2.60521	9.3	21.3
REMUNSYS	.69748	3	2.17464	7.8	29.1
NOSUPER	.48297	4	1.95798	7.0	36.1
MOREPHAR	.43689	5	1.60207	5.7	41.8
PRESENCE	.58159	6	1.38309	4.9	46.8
FACITATE	.40474				
ACCSNOTE	.41199				
COMPOLIC	.48933				
DOCWANT	.43524				
PTHURRY	.55768				
APPROACH	.64420				
ALTREAT	.39843				
BUSYTIME	.61638				
FINACIAL	.40872				
BETREAT	.56195				
TREADOC	.25007				
DEMANDPX	.42424				
FAITHDOC	.49775				
DOCINFLU	.42294				
WANTADV	.53259				
LOSECONF	.52497				
COMEBACK	.37319				
USETACT	.32432				
PEOPLADV	.23981				
TIMEKNOW	.53316				
QUIKASAP	.50948				
DOCINFO	.31475				

Table 45 Initial statistics: principal-axis factoring

Variable	Communality	Factor	Eigenvalue	Pct of Var.	Cum Pct
TRAINING	.21919	1	2.74161	9.8	9.8
PUBDMAND	.50063	2	2.00053	7.1	16.9
REMUNSYS	.60652	3	1.50623	5.4	22.3
NOSUPER	.33620	4	1.31148	4.7	27.0
MOREPHAR	.29655	5	1.03424	3.7	30.7
PRESENCE	.47624	6	.72186	2.6	33.3
FACITATE	.27226				
ACCSNOTE	.28976				
COMPOLIC	.27542				
DOCWANT	.27097				
PTHURRY	.44167				
APPROACH	.58390				
ALTREAT	.26235				
BUSYTIME	.53747				
FINACIAL	.26920				
BETREAT	.34712				
TREADOC	.14744				
DEMANDPX	.25777				
FAITHDOC	.36369				
DOCINFLU	.30838				
WANTADV	.38092				
LOSECONF	.37885				
COMEBACK	.16894				
USETACT	.20704				
PEOPLADV	.13444				
TIMEKNOW	.40429				
QUIKASAP	.39134				
DOCINFO	.18739				

Figure 2 Scree plot of eigenvalues against factors derived from initial principal-component factoring

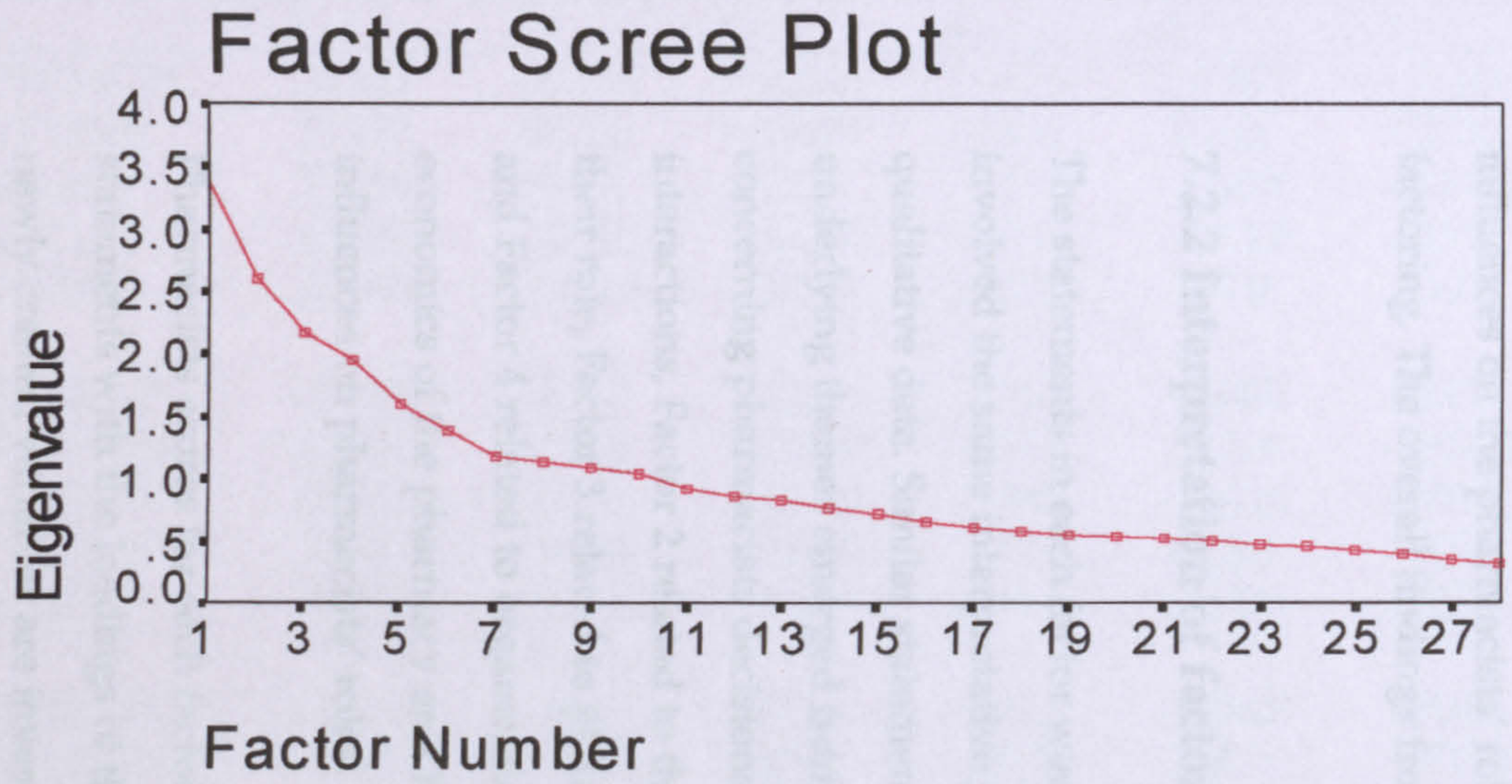
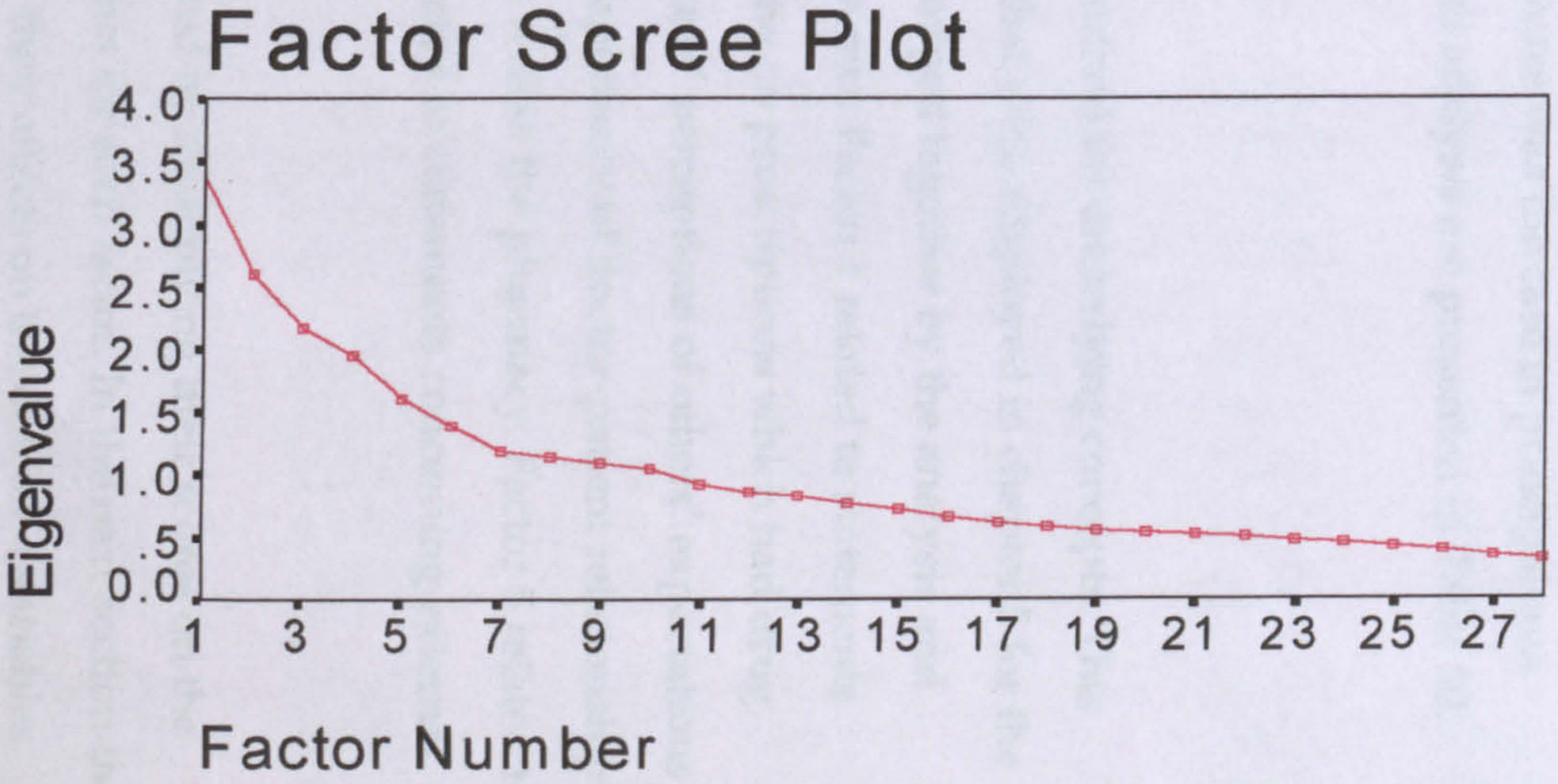


Figure 3 Scree plot of eigenvalues against factors derived from initial principal-axis factoring



Once the number of factors to be extracted had been determined the main analysis was carried out. Table 46 and Table 47 show the relationships between each statement and the factors as loadings using principal-component and principal-axis factoring followed by orthogonal rotation (see section 4.7.3). The statements have been listed in terms of the size of their loading on the factor to which they are most closely related. Both principal-component and principal-axis factoring grouped the statements in a similar way, although differences were observed in the grouping of the statement BETREAT. This was not unexpected since the statement seemed to be correlated with 3 of the factors.

Table 48 and 49 group the statements into each of the factors. The only other difference observed between principal-component factoring and principal-axis factoring was in Factors 5 and 6. In principal-component factoring the statements relating to economics of the pharmacy explained more variation than did statements relating to external influences on the pharmacists' roles. The reverse was the case in principal-axis factoring. The overall findings from the factor analysis are presented in Table 50.

7.2.2 Interpretation of factors

The statements in each factor were then examined for underlying concepts. This involved the same interpretative processes that were employed in chapter 5 for the qualitative data. Similar statements were grouped together by the analysis and underlying themes emerged from the statements. Factor 1 related to statements concerning pharmacists decisions to intervene on prescriptions which had drug interactions, Factor 2 related to the pharmacists' perceptions of others' expectations of their role, Factor 3 related to pharmacists' importance of doctor-patient relationships and Factor 4 related to organisation of work within the pharmacy. Factor 5 related to the economics of the pharmacy and Factor 6 related to statements concerning external influences on pharmacists' roles.

Pharmacists scores for each factor is calculated by multiplying their scores on the statements with the loadings of the statements for each factor. In the next section these newly created variables are investigated for their effects on the outcome variables.

Table 46 Statements' loading on six factors using principal-component factoring

	1	2	3	4	5	6
APPROACH	.78703	-.11855	.10211	.00476	-.00976	-.01406
BUSYTIME	.77279	.06206	-.01029	.08492	.08638	.02336
PTHURRY	.72456	.08101	.10739	.11117	-.03604	-.03070
FINACIAL	.61959	-.07102	-.08070	.03731	-.05208	.09576
ALTREAT	.58160	-.04865	-.02010	.00225	.23948	.00684
QUIKASAP	-.01896	.68147	.12290	.08764	-.11483	.09356
TIMEKNOW	.11362	.67716	-.01269	.18166	.01786	-.16800
WANTADV	.02585	-.66091	-.02740	.18380	-.24285	-.04021
PEOPLADV	.16183	-.44338	-.04469	-.11335	.01246	-.04511
DOCINFO	.07854	.39196	.18860	.25714	-.15183	.17379
FAITHDOC	-.02386	-.00810	.70331	.04515	-.00229	.02045
LOSECONF	-.12079	-.22567	.65718	-.07174	.13173	-.07122
DEMANDPX	.24929	.09642	.58130	.07760	-.08949	-.02928
DOCINFLU	.09003	.24542	.54820	-.07029	-.00882	.22150
USETACT	-.06577	.03826	.50613	-.08021	.17081	.16356
TREADOC	.01293	.23754	.41924	.01637	.13196	-.00604
PRESENCE	-.02011	.11195	-.04195	.72787	.16032	.10673
NOSUPER	.24098	.07846	-.03395	.63944	-.01459	.09217
MOREPHAR	-.00172	.23506	-.08808	.53975	.28329	-.04799
BETREAT	.07007	-.50109	.05095	.52891	-.10580	-.11143
COMPOLIC	.08457	.15842	.02613	-.08551	.65697	-.13221
DOCWANT	-.01430	-.09348	.22076	-.00608	.61443	-.00128
FACITATE	.11124	-.04401	-.00580	.30996	.53985	.05365
TRAINING	.03698	.01208	-.01690	.11967	.51068	.30676
ACCSNOTE	-.01551	.00366	.19024	.36885	.46558	.15076
REMUNSYS	-.02454	.11368	-.01194	.12910	-.00830	.81675
PUBDMAND	.05986	.13277	.06719	.11313	.04842	.78005
COMEBACK	.05961	-.20608	.24505	-.14262	.12819	.47994

Table 47 Statements' loading on six factors using principal-axis factoring

	1	2	3	4	5	6
APPROACH	.74854	-.11377	.10149	.00659	-.01691	-.00329
BUSYTIME	.71986	.05622	-.00898	.07715	.02501	.09728
PTHURRY	.64582	.07361	.09148	.10209	-.00638	-.01835
FINACIAL	.50314	-.06157	-.05955	.04765	.07617	-.02532
ALTREAT	.47296	-.04052	.00586	.03169	-.00879	.18948
QUIKASAP	-.01519	.59945	.10794	.08334	.07849	-.08371
TIMEKNOW	.09768	.59269	-.02321	.17105	-.11582	.01619
WANTADV	.03562	-.56532	-.03717	.13128	-.03560	-.20044
BETREAT	.08462	-.41127	.01170	.40368	-.06685	-.05707
PEOPLADV	.11608	-.33323	-.03579	-.07643	-.05215	-.00881
DOCINFO	.07595	.32292	.14733	.18957	.12525	-.06336
FAITHDOC	-.00888	.01569	.60148	.02584	.02534	.01672
LOSECONF	-.09572	-.17989	.56220	-.07149	-.05448	.11483
DOCINFLU	.07575	.22247	.47075	-.04885	.16977	.01837
DEMANDPX	.21098	.09398	.44824	.04947	.00213	-.03242
USETACT	-.04625	.05520	.41276	-.04530	.09204	.14479
TREADOC	.01324	.19483	.30819	.01336	.02918	.11532
PRESENCE	.00105	.11029	-.04097	.64626	.10009	.18634
NOSUPER	.22717	.08033	-.03744	.51600	.09503	.03811
MOREPHAR	.01946	.20168	-.07028	.43281	-.01443	.25105
REMUNSYS	-.01800	.11064	.02427	.11021	.76207	.02152
PUBDMAND	.06066	.13085	.09967	.09503	.67393	.08169
COMEBACK	.04155	-.13348	.23168	-.06789	.28321	.10443
COMPOLIC	.06099	.12989	.04101	-.03560	-.09345	.49310
DOCWANT	-.00188	-.06715	.19837	.00125	.00890	.47648
FACITATE	.10678	-.02724	.00962	.23747	.05555	.44782
ACCSNOTE	.01116	.01947	.16579	.27302	.14326	.40830
TRAINING	.03982	.02047	.03360	.10762	.21056	.40017

Table 48 Statements relating to the factors produced by principal-components factoring

	Variable name	Description
Factor 1	APPROACH	If the prescriber was approachable or not
	BUSYTIME	How busy you are at the time
	PTHURRY	If you got the impression that the patient was in a hurry
	FINACIAL	If your intervention meant that you would lose out financially
	ALTREAT	If you were confident in suggesting an alternative treatment
Factor 2	QUICKASAP	The majority of people just expect me to fill the doctors prescriptions as quickly as possible
	TIMEKNOW	I don't have time to really get to know my patients
	WANTADV	The local doctors want advice from me
	PEOPLEADV	Most people who ask for medicines by name want advice from me
	DOCINFO	People expect the doctor to have given them all the information on their treatment
Factor 3	FAITHDOC	Having faith in the doctor helps with the overall success of treatment
	LOSECONF	In counselling patients I have to be careful not to make the patient lose confidence in their doctor
	DOCINFLU	Doctors have a great deal of influence over patients
	DEMANDPX	I have to be careful when I tell a patient about a possible drug interaction so that they don't go back to the doctor and demand something else because I said so
	USETACT	Unless I use tact, when I refuse to sell a medicine, I upset the customer
	TREADOC	I am aware that I might tread on doctor-patient relationships when I give advice on prescribed medication
Factor 4	PRESENCE	If I did not have to be present in the pharmacy at all times
	NOSUPER	If technicians in my pharmacy were allowed to do the dispensing
	MOREPHAR	If there were more pharmacists in the pharmacy that I work in
	BETREAT	I usually inform doctors of the availability of better treatments for patients
Factor 5	COMPOLIC	If it was my company's policy to implement the services
	DOCWANT	If the local doctors wanted the services
	FACITATE	If there was a facilitator who could initially help to set the services up for me
	TRAINING	If I had additional training
	ACCSNOTE	If I had access to patients' medical notes
Factor 6	REMUNSYS	If there was a more appropriate remuneration system
	PUBDMAND	If I had more public demand and they were willing to pay for the services
	COMEBACK	I have to make sure the people who come into my pharmacy are satisfied. If I don't they won't come back.

Table 49 Statements relating to factors produced by principal-axis factoring

	Variable name	Description
Factor 1	APPROACH	If the prescriber was approachable or not
	BUSYTIME	How busy you are at the time
	PTHURRY	If you got the impression that the patient was in a hurry
	ALTREAT	If you were confident in suggesting an alternative treatment
	FINACIAL	If your intervention meant that you would lose out financially
Factor 2	QUICKASAP	The majority of people just expect me to fill the doctors prescriptions as quickly as possible
	TIMEKNOW	I don't have time to really get to know my patients
	WANTADV	The local doctors want advice from me
	BETREAT	I usually inform doctors of the availability of better treatments for patients
	PEOPLEADV	Most people who ask for medicines by name want advice from me
	DOCINFO	People expect the doctor to have given them all the information on their treatment
Factor 3	FAITHDOC	Having faith in the doctor helps with the overall success of treatment
	LOSECONF	In counselling patients I have to be careful not to make the patient lose confidence in their doctor
	DOCINFLU	Doctors have a great deal of influence over patients
	DEMANDPX	I have to be careful when I tell a patient about a possible drug interaction so that they don't go back to the doctor and demand something else because I said so
	USETACT	Unless I use tact, when I refuse to sell a medicine, I upset the customer
	TREADOC	I am aware that I might tread on doctor-patient relationships when I give advice on prescribed medication
Factor 4	PRESENCE	If I did not have to be present in the pharmacy at all times
	NOSUPER	If technicians in my pharmacy were allowed to do the dispensing
	MOREPHAR	If there were more pharmacists in the pharmacy that I work in
Factor 5	REMUNSYS	If there was a more appropriate remuneration system
	PUBDMAND	If I had more public demand and they were willing to pay for the services
	COMEBACK	I have to make sure the people who come into my pharmacy are satisfied. If I don't they won't come back.
Factor 6	COMPOLIC	If it was my company's policy to implement the services
	DOCWANT	If the local doctors wanted the services
	FACITATE	If there was a facilitator who could initially help to set the services up for me
	ACCSNOTE	If I had access to patients' medical notes
	TRAINING	If I had additional training

Table 50 Final factors and statements relating to each factor

Factors	Description	Loading	Eigenvalue (% variance)	Cronbach's alpha
Factor 1	**Considerations in intervening on a prescription with a drug interaction**		2.74 (9.8%)	0.77
	If the prescriber was approachable or not	0.75		
	How busy you are at the time	0.72		
	If you got the impression that the patient was in a hurry	0.65		
	If you were confident in suggesting an alternative treatment	0.50		
	If your intervention meant that you would lose out financially	0.47		
Factor 2	**Pharmacists' perceptions of others' expectations of their role**		2.00 (7.1%)	0.59
	The majority of people just expect me to fill the doctors prescriptions as quickly as possible	0.60		
	I don't have time to really get to know my patients	0.59		
	The local doctors want advice from me	-0.57		
	I usually inform doctors of the availability of better treatments for patients	-0.41		
	Most people who ask for medicines by name want advice from me	-0.33		
	People expect the doctor to have given them all the information on their treatment	0.32		
Factor 3	**Pharmacists' perceived importance of doctor patient relationships**		1.51 (5.4%)	0.61
	Having faith in the doctor helps with the overall success of treatment	0.60		
	In counselling patients I have to be careful not to make the patient lose confidence in their doctor	0.56		
	Doctors have a great deal of influence over patients	0.47		
	I have to be careful when I tell a patient about a possible drug interaction so that they don't go back to the doctor and demand something else because I said so	0.45		
	Unless I use tact, when I refuse to sell a medicine, I upset the customer	0.41		
	I am aware that I might tread on doctor-patient relationships when I give advice on prescribed medication	0.31		

Table 50 continued

Factors	Description	Loading	Eigenvalue (% variance)	Cronbach's alpha
Factor 4	**Organisation of work within the pharmacy**		1.31 (4.7%)	0.61
	If I did not have to be present in the pharmacy at all times	0.65		
	If technicians in my pharmacy were allowed to do the dispensing	0.52		
	If there were more pharmacists in the pharmacy that I work in	0.43		
Factor 5	**Economics of the pharmacy**		1.03 (3.7%)	0.59
	If there was a more appropriate remuneration system	0.76		
	If I had more public demand and they were willing to pay for the services	0.67		
	I have to make sure the people who come into my pharmacy are satisfied. If I don't they won't come back.	0.28		
Factor 6	**External influences on the pharmacists roles**		0.72 (2.6%)	0.59
	If it was my company's policy to implement the services	0.49		
	If the local doctors wanted the services	0.48		
	If there was a facilitator who could initially help to set the services up for me	0.45		
	If I had access to patients' medical notes	0.41		
	If I had additional training	0.40		

7.2.3 Discussion

In carrying out the factor analysis here, several points need to be discussed. Firstly out of the 50 statements present in the questionnaire, only 28 were included in the final factor analysis. The statements which had a correlation coefficient of below 0.3 were excluded from the analysis. However, it could be argued that this value is arbitrarily chosen and a better value to be used would be 0.5. Large sample sizes, however, generally produce lower correlation coefficients and this was observed in the data set here where there were only a few correlation coefficients above 0.5. In addition in social science studies high correlations are generally not frequently observed.

Another point to consider is the KMO measure which describes the acceptability of the data set for factor analysis. The KMO value for this data set was 0.68, which describes the data set as middling in terms of acceptability for factor analysis.

The Eigenvalues for each factor were generally low and consequently the overall variance explained by the six factors which were extracted were between 46% and 33% depending on the factor analysis carried out. However, it is generally accepted that eigenvalues are depressed by large samples[326], but the unaccounted variance implies that there are other issues which have not be taken into account in this analysis. The final factors which were described were produced using different methods of factor analysis, principal-component and principal-axis factoring. The values of Cronbach's alpha for the statements in each factor are generally high, confirming their robust grouping within the factors. These points add greater confidence to the underlying concepts and the interpretation of the factors.

A further point to consider is that despite carrying out an orthogonal rotation on the statements' loadings on the factors, there were a number of statements which loaded on more than one factor. This implies that the statements had more than one underlying theme. In addition correlations were also observed between the factors, again implying that the factors are related to each other. This confirms the findings of the qualitative interviews which showed the relationships between each of the factors affecting the role of the pharmacist.

Finally although the analysis here produced a number of underlying factors from the statements, it is difficult to attribute the effect of pharmacists' responses to each statement to the pharmacists' scores on each factor. This is due to the many different components that are used to calculate the pharmacists' scores on each factor. All these components exert an effect, thus making it difficult to attribute increases in the factor scores to increases in a particular statement.

The analysis here produced six factors representing underlying concepts in the statements:

- Factor 1. Considerations in intervening on a prescription with a drug interaction
- Factor 2. Pharmacists' perceptions of others' expectations of their role.
- Factor 3. Pharmacists' perceptions of the importance of doctor patient relationships.
- Factor 4. Organisation of work within the pharmacy.
- Factor 5. Economics of the pharmacy.
- Factor 6. External influences on pharmacists' roles.

It is encouraging to observe that the underlying concepts produced a mixture of pharmacists attitudes and beliefs as well as everyday working environment and contextual factors.

Despite the caution that must be exercised in the interpretation of the factor analysis, the factor analysis seems to have served its purpose of producing underlying concepts, thus reducing the data and easing the advanced analysis presented in the next section.

7.3 Factors affecting interventions on prescriptions and advice giving.

7.3.1 Introduction

The purpose of carrying out the factor analysis described earlier in this chapter was to aggregate the data from the attitudinal statements so that underlying concepts could be elucidated. These factors could then be investigated to see their effects on the

pharmacists' reported behaviour. In this section the reported behaviours investigated are:

- the number of times per week pharmacists make clinical interventions where they have to contact the doctor;
- the number of times per week pharmacists make management interventions where they have to contact the surgery;
- the number of times per day they give advice concerning non-prescription medicines and;
- the number of times per day they give advice concerning prescription medicines.

These are the outcome or dependent variables. There are many independent variables whose effects on the dependent variables need to be explored. The technique used in this type of multiple variable analysis is called multiple regression. A detailed description of the principle of regression analysis is provided in section 4.7.3. This section presents the results of the multiple regression analysis.

7.3.2 Simple regression analysis

Before carrying out a multiple regression analysis, it is advisable to obtain an indication of the variables which might prove to have a significant effect on the dependent variables. Table 51 below presents the significance levels from the results of simple regression analysis. A more cautious significance level must be considered since there are a large number of comparisons. However, simple regression analysis does not take into account possible interactions and confounding. Significance levels below or very close to 0.01 are highlighted.

Table 51 Simple regression analysis of the independent variables and the outcome variables

Variables		DRUGPW: clinical interventions	CLARYTPW: management interventions	NONPXTPD: advice on non-prescription medicines	PRXTPD: advice o prescription medicines
PREREG	Pre-registration training	0.81	0.44	0.77	0.74
PEOPLE	Description of clientele	0.57	0.91	**< 0.0001**	**0.008**
SOCIO	Socio-economic class	0.96	0.77	**< 0.0001**	0.046
PHARNUM	Number of pharmacists	**0.01**	0.14	**< 0.0001**	**0.001**
QUALDISP	Presence of qualified dispensary support	**0.002**	**< 0.0001**	**< 0.0001**	**< 0.0001**
SUPDISP	Presence of dispensary support	0.11	**< 0.0001**	0.039	**0.003**
AGE	Age of pharmacist	**0.008**	0.031	**< 0.0001**	**0.022**
GENDER	Gender of pharmacist	0.94	0.99	0.42	0.96
EXTENDED	If involved in any extended roles	0.04	**0.016**	**< 0.0001**	**0.001**
METDOC	If had met the local doctors	**< 0.0001**	**< 0.0001**	0.46	0.29
KNOWDOC	How well knew the local doctors	**0.002**	0.036	0.23	**0.007**
JOBTITLE	Pharmacists' job titles	0.73	0.061	0.56	0.64
TYPPHARM	The type of pharmacy company	0.22	0.18	**< 0.0001**	0.16
HELTHCEN	If the pharmacy is in a health centre	0.88	0.24	**0.015**	0.46
LOCATION	The location of the pharmacy	0.86	0.09	**0.01**	0.1
LONGQUAL	The number of years since registration	0.03	0.08	**< 0.0001**	0.07
YERINJOB	The number of years in the present job	0.6	0.68	0.12	0.81
NUMPRACT	The number of practices in the vicinity	**0.01**	**0.013**	**< 0.0001**	**0.005**
NUMPHARM	The number of pharmacies in the vicinity	0.59	0.66	**0.014**	**0.015**
OTCWORK	Workload in terms of OTC medicines	**0.002**	**0.008**	**< 0.0001**	**< 0.0001**
PRXWORK	Workload in terms of prescriptions	**< 0.0001**	**< 0.0001**	0.74	0.022
CONTEDU	The number of hours of continuing ed.	0.32	0.11	0.076	**0.012**
PHARMEET	The number of pharmacy meetings	**0.004**	**< 0.0001**	0.082	**< 0.0001**
COMMITE	If member of a committee	0.29	**0.014**	0.13	**0.019**
FACTOR1	Considerations in interventions	**0.003**	0.15	0.50	**0.01**
FACTOR2	People's expectations	0.32	0.82	0.71	0.07
FACTOR3	Doctor-patient relationships	0.33	0.52	**0.04**	**< 0.0001**
FACTOR4	Organisation of work	0.87	0.39	0.56	0.11
FACTOR5	Economics	0.37	0.96	0.48	0.96
FACTOR6	External influences	**0.002**	0.04	0.79	0.10

7.3.3 Multiple regression analysis

As opposed to simple regression, multiple regression investigates the effects of each variable on the outcome variables with the effect of the other variables controlled. The regression program within SPSS has a large number of options for carrying out multiple regression analysis. The option used in this section was the Forward Stepwise Regression method which comprises of adding variables to the model according to the statistical significance of their contribution in explaining the variance in the dependent variable. The model is finalised once no more variables are eligible for entry. The significance level set for including variables in the model was 0.05. The multiple regression analysis for each of the outcome variables are presented below.

7.3.3.1 Interventions regarding drug interactions (DRUGPW)

Simple regression for DRUGPW suggested that the number of interventions pharmacists made regarding drug interactions was affected by:

- the number of pharmacists and qualified dispensary support present (PHARMNUMB, QUALDISP);
- the age of the pharmacists (AGE);
- if they had met and knew the local doctors (METDOC, KNOWDOC);
- the number of practices from which their prescriptions came from (NUMBPRACT);
- the workload both in terms of OTC sales and prescriptions dispensed (OTCWORK, PRXWORK);
- the number of pharmacy meetings attended (PHARMEET);
- statements relating to interventions on prescriptions (FACT_1) and;
- external influences on pharmacists' roles (FACT_6).

As explained above simple regression analysis does not take into account the effect of each of the variables on each other. For these effects to be taken into account one needs to carry out a multiple regression analysis. The Table 52 below shows part of the SPSS output produced for the regression analysis investigating the effect of the variables on the number of times pharmacists contact the doctor regarding drug interactions. An explanation of the values in the output is provided in section 4.7.3.

Table 52 Multiple regression model for the outcome variable DRUGPW: number of times contacts are made with the doctor about drug interactions

Multiple R	0.87
R Square	0.76
Adjusted R Square	0.70
Standard Error	0.81

Analysis of Variance

	DF	Sum of Squares	Mean Square
Regression	8	68.58	8.57
Residual	33	21.89	0.66

F = 12.92 Sig F = < 0.001

Variables in the equation

Variable	B	SE B	Beta	Tolerance	T	Sig. T
PEOPLE	-0.43	0.14	-0.30	0.79	-3.08	0.004
QUALDISP	0.66	0.31	0.22	0.66	2.13	0.04
GENDER	0.79	0.29	0.26	0.82	2.77	0.009
LOCATION	0.68	0.19	0.45	0.47	3.61	< 0.001
NUMPHARM	0.68	0.14	0.57	0.54	4.90	< 0.001
PRXWORK	0.53	0.12	0.40	0.84	4.32	< 0.001
FACT_1	0.50	0.14	0.35	0.79	3.60	< 0.001
FACT_6	-0.51	0.13	-0.34	0.95	-3.88	< 0.001
(Constant)	-2.58	0.99			-2.61	0.013

The variables that were selected for inclusion in the equation or model were: PEOPLE, QUALDISP, GENDER, LOCATION, NUMPHARM, PRXWORK, FACT_1, and FACT_6. This implies that after controlling for the effect of all of the

variables, the number of times pharmacists contact the doctor regarding drug interactions is affected by the type of pharmacy clientele, the presence of qualified dispensing support, the gender of the pharmacist, the location of the pharmacy, the number of pharmacists who work in the pharmacy, workload of the pharmacist in terms of number of prescriptions dispensed per week, statements relating to interventions on prescriptions, and external influences on pharmacists' roles. Thus after the multiple regression analysis the number of variables affecting the outcome variable was reduced, implying there is confounding between variables.

The multiple R for the multiple regression analysis above is 0.87 implying confidence in the model. The F ratio tests the null hypothesis that the multiple correlation is zero in the population from which the sample was taken. For the model above , F = 12.92 and the significance level is < 0.001. This implies that it is extremely improbable that R in the population is zero. The R square, also known as the coefficient of determination, is 0.76. This implies that only 24% of the variance in DRUGPW is not explained by the variables PEOPLE, QUALDISP, GENDER, LOCATION, NUMPHARM, PRXWORK, FACT_1, and FACT_6.

The tolerances for each of the variables are all high indicating that multicollinearity is unlikely. The relative effects of each of the variables on the number of times pharmacists make interventions and contact the doctor regarding drug interactions can be determined from the standardised regression coefficients or Beta. It can be seen that NUMPHARM has the greatest impact on the dependent variable which is positive, implying that the higher the number of pharmacies within half a mile of the pharmacy, the higher the number of interventions regarding drug interactions per week. LOCATION has the next highest impact, followed by PRXWORK, FACT_1, FACT_6, PEOPLE, GENDER and QUALDISP. The values of the standardised regression coefficients allow prediction of the effect of most of the variables in the model on the outcome measure. The effect of factors 1 and 6 are more difficult to interpret. This stems from the complexity of the calculation of the pharmacists' scores for each factor, in particular that a number of components can increase the pharmacists' scores for that factor. Thus it is difficult to attribute changes in the outcome variable to components which make up the scores for each factor. Therefore in the analysis described in this

section when one of the factors is found to have a statistically significant effect an attempt is not made to present a detailed account of the finding.

- The values of the standardised regression coefficients reveal that for each unit change in NUMPHARM, there is a change in DRUGTPW of 0.57, with the effects of the other variables controlled. Thus the higher the number of pharmacies within half a mile of the pharmacy the greater the number of interventions regarding drug interaction per week.

- For each unit change in LOCATION, there is a change in DRUGTPW of 0.42. Thus as the location of the pharmacy changes from city centre to residential / inner city to suburban to rural to out of town shopping centre the number of interventions regarding drug interactions increases.

- A unit change in PRXWORK produces a change in DRUGTPW of 0.4. Thus the greater the workload of the pharmacist in terms of number of prescriptions dispensed per day, the greater the number of interventions on prescriptions regarding drug interactions.

- A unit change in FACT_1 produces a change in DRUGTPW of 0.35. Thus as one would suspect factor 1, which represents considerations in intervening on prescriptions is important in determining the number of interventions per week.

- A negative effect on DRUGTPW is exerted by FACT_6. A unit change in FACT_6 produces a change in DRUGTPW of -0.34. Factor 6 represents external influences on pharmacists' roles and these are shown to have an effect on the number of interventions per week.

- The variable PEOPLE also exerts a negative effect on DRUGTPW. A unit change in PEOPLE produces a change in DRUGTPW of -0.30. Thus as the description of the clientele changes from mainly local residents to mainly people who work but don't live in the area to mainly town centre shoppers, the number of interventions regarding drug interaction is reduced.

- A unit change in the variable gender produces a change of 0.26. Thus female pharmacists make higher numbers of interventions regarding drug interactions.

- A unit change in the variable QUALDISP produces a change of 0.22. Thus the greater the number of qualified dispensary support in the pharmacy, the greater the number of interventions regarding drug interactions.

In summary higher number of interventions regarding drug interactions which need contact with the doctor are likely with increases in number of pharmacies in the vicinity, the location of the pharmacy, the workload in terms of dispensing, Factor 1, female pharmacists, and the presence of qualified dispensary support. In contrast lower interventions of this type are likely with the nature of the clientele of the pharmacy and Factor 6.

7.3.3.2 Interventions regarding clarification of prescriptions (CLARYPW)

Simple regression analysis (Table 51) showed that the number of interventions regarding the clarification of prescriptions was affected by:

- the presence of qualified and non-qualified dispensary support (QUALDISP, SUPDISP);
- if the pharmacists were involved in any of the extended roles (EXTENDED);
- if they had met the local doctors (METDOC);
- the number of practices from which their prescriptions come from (NUMBPRACT);
- workload both in terms of OTC and prescription work (OTCWORK, PRXWORK) and;
- attendance at pharmacy meetings and membership of committees (PHARMEET, COMMIT).

The multiple regression analysis, however, only showed two significant variables in the model with the effects of the other variables controlled (see Table 53): PRXWORK, workload in terms of number of prescriptions dispensed and SOCIO, the socio-economic class of the pharmacy clientele. It is interesting to note that SOCIO was not significant on simple regression analysis, justifying the multiple regression analysis carried out here. These variables account for 46 % of the variation in the outcome variable.

- A unit change in PRXWORK, produces a change in CLARYPW of 0.69. This implies that the higher the workload in terms of the number of prescriptions dispensed, the higher the number of contacts per week with the surgery to clarify prescriptions.

- A unit change in SOCIO, produces a change in CLARYPW of -0.24. Thus as the description of the socio-economic class of the majority of the people who go into the pharmacy changes from mainly working class to mainly middle class to mixed middle and working class, the lower the number of interventions regarding the clarification of prescriptions.

Thus as would be expected the greater the number of prescriptions dispensed, the greater the number of interventions on prescriptions requiring clarification, conversely the higher the socio-economic class of the clientele of the pharmacy the lower the number of interventions requiring clarification of prescriptions.

Table 53 Multiple regression model for the outcome variable CLARYPW: number of times contacts are made with the surgery about clarifying prescriptions

Multiple R	0.68
R Square	0.46
Adjusted R Square	0.44
Standard Error	1.50

Analysis of Variance

	DF	Sum of Squares	Mean Square
Regression	2	76.78	38.39
Residual	39	88.20	2.26

F = 16.97 Sig F = < 0.001

Variables in the equation

Variable	B	SE B	Beta	Tolerance	T	Sig. T
SOCIO	-0.58	0.28	-0.24	0.95	-2.03	0.048
PRXWORK	1.23	0.21	0.69	0.95	5.77	< 0.001
(Constant)	2.23	0.93			2.41	0.02

7.3.3.3 Advice regarding non-prescription medicines (NONPXTPD)

Following simple regression analysis, a number of variables showed significant effects on the number of times per day advice was given on non-prescription medicines (see Table 51). These variables included:

- the nature of pharmacy clientele (PEOPLE, SOCIO);
- the presence of additional pharmacists and qualified technicians in the pharmacy (PHARMNUMB, QUALDISP);
- the age of the pharmacist and number of years of qualification (AGE, LONGQUAL);
- if the pharmacist was involved in a number of extended services (EXTEND);
- the type and location of pharmacy (TYPPHARM, HELTHCEN, LOCATION);
- the number of practices and pharmacies within the vicinity of the pharmacy (NUMPRACT, NUMPHARM);
- the workload of the pharmacist in terms of OTC sales (OTCWORK) and ;
- pharmacists' perceived importance of doctor patient relationships (FACT_3) .

Multiple regression analysis, however, showed 3 variables which had a significant effect on the number of times per day advice was given on non-prescription medicines (see Table 54). This model accounted for 33% of the variation in the number of times advice was given on non-prescription medicines. The standardised regression coefficients reveal the order of magnitude and the effects of each variable on the number of times pharmacists give advice on non-prescription medicines.

- Workload in terms of OTC sales exerted the greatest influence on the number of times advice was given. A unit change in this variable produced a change of 0.38 in NONPXTPD. Thus the greater the workload in terms of OTC sales the greater the number of times per day advice was given on non prescription medicines.

- A unit change in gender produced a change of 0.35 in NONPXTPD. This implies that female pharmacists give more advice per day on non prescription medicines.

- A unit change in HELTHCEN produced a change of 0.32 in NONPXTPD, implying that pharmacists working in health centres provided less advice per day on non prescription medicines.

To summarise, higher incidence of advice giving on non-prescription medicines is likely with pharmacists who are busier in terms of OTC sales, female pharmacists and those who work in non-health centre pharmacies.

Table 54 Multiple regression model for the outcome variable NONPXTPD: *number of times advice is given per day on non prescription medicines*

Multiple R	0.58	
R Square	0.33	
Adjusted R Square	0.28	
Standard Error	1.92	

Analysis of Variance

	DF	Sum of Squares	Mean Square
Regression	3	70.68	23.56
Residual	38	140.93	3.71

F = 6.35 Sig F = 0.0013

Variables in the Equation

Variable	B	SE B	Beta	Tolerance	T	Sig. T
GENDER	1.60	0.61	0.35	0.99	2.61	0.013
HELTHCEN	2.76	1.15	0.32	0.99	2.39	0.021
OTCWORK	0.87	0.30	0.38	0.99	2.85	0.007
CONSTANT	0.86	1.42			0.60	0.547

7.3.3.4 Advice on prescribed medicines (PRXTPD)

Simple regression revealed a number of variables which showed significant effects on the number of times per day pharmacists provided advice on prescribed medicines. The variables included PEOPLE, PHARNUM, QUALDISP, SUPDISP, AGE, EXTENDED,

KNOWDOC, NUMBPRACT, PHARMNUMB, OTCWORK, CONTEDU, PHARMEET, and FACT_3.

Once again multiple regression reduced the number of significant variables. Only FACT_4, the organisation of work within the pharmacy, OTCWORK and PRXWORK, workload in terms of number of OTC sales and prescriptions dispensed, showed a significant effect on the outcome variable. These accounted for 36% of the variation (see Table 55).

- A unit change in PRXWORK produced a change of 0.39 in the number of times advice was provided on prescribed medicines. This implies that the greater the workload in terms of number of prescriptions dispensed the greater the number of times advice is given on prescription medicines.

- A unit change in FACT_4 produces a change of -0.34 on the number of times advice is given on prescription medicines. Thus factor 4 which represents the organisation of work within the pharmacy affects the number of times advice is given on prescription medicines.

- A unit change in OTCWORK produces a change of 0.30 on the number of times advice is given on prescription medicines. Thus the greater the workload in terms of OTC sales the higher the number of times advice is given on prescription medicines.

In summary, higher incidence of advice on prescription medicines is likely with higher workload in terms of prescriptions dispensed, and OTC sales. Whilst lower incidence of advice on prescription medicines is likely with Factor 4 statements relating to organisation of work within the pharmacy.

Table 55 Multiple regression model for the outcome variable PRXTPD: number of times advice is given per day on prescription medicines

Multiple R	0.60
R Square	0.36
Adjusted R Square	0.31
Standard Error	2.02

Analysis of Variance

	DF	Sum of Squares	Mean Square
Regression	3	88.62	29.54
Residual	38	0 154.45	4.06

F = 7.27 Sig F = < 0.001

Variables in the equation

Variable	B	SE B	Beta	Tolerance	T	Sig. T
OTCWORK	0.73	0.35	0.30	0.80	2.06	0.046
PRXWORK	0.85	0.30	0.39	0.84	2.81	0.007
FACT_4	-0.78	0.31	-0.34	0.93	-2.57	0.014
(Constant)	0.77	1.38			0.56	0.58

7.3.4 Discussion

There are several issues that need to be discussed here. Firstly it can be argued that the outcome measures are not a true reflection of practice since they are self reported estimates of pharmacists' activities. The measures in the present study, however, were not used to quantify the pharmacists' exact activities but were used to determine the range of these activities. The ranges of these activities correspond to those ranges reported in other studies[55,56,108,109,335]. The measures were then used to investigate the effect of other variables on the pharmacists' activities.

The method of regression analysis employed in this study may be criticised for using statistical criteria for inclusion and exclusion of variables in the model rather than theoretical ones. This can be countered since the simple regression table allowed the consideration of theoretical models. In addition the majority of the variables in the models and their interpretation corresponded to the findings from the qualitative stage of the study.

The regression models on the whole explained an acceptable percentage of the variation in each of the outcome variables. A high percentage of explained variation was not expected since social behaviour of this kind is very complex and can not be explained in its entirety by a series of variables. Considering this point the range of percentage variation that the models explained, 33% to 76%, does not appear as low as initial examination might lead us to expect.

It was interesting to see that the factors representing underlying concepts were shown to have a statistically significant effect on some of the outcome variables. The factors were considerations for intervening on prescriptions, external influences on the pharmacists' roles and organisation of work in the pharmacy.

The multiple regression analysis carried out in this chapter did have some limitations. Firstly one of the outcome variables, DRUGPW : the number of clinical interventions, showed a positive skew in its distribution. Thus the results should be viewed with caution. Secondly, it was difficult to interpret the exact effects of some of the variables which were shown to have a significant effect on the outcome variables. In particular the effect of the factors on the variables and the effect of some of the categorical variables. The difficulty with the interpretation of the effects of the factors stemmed from the number of components which make up the pharmacists' scores for each factor. This makes it difficult to attribute changes in the factor to individual responses given to statements. Hence only the significance of the effect of the factors was reported. The difficulty with the interpretation of the other variables lies in their categorical nature which makes redundant the normal explanation of incremental changes in the variable producing incremental changes in the outcome.

Despite these cautions the advanced analysis in this chapter has clarified the effect of the more quantifiable variables on the pharmacists' reported behaviours which all have implications for the extension of the everyday activities of the pharmacist. These findings will be discussed further in chapter 8. In addition the analysis presented here has shown the value of the combination of qualitative and quantitative methods and data.

7.4 Factors affecting the pharmacists' involvement in extended role Services.

7.4.1 Introduction

In this study a distinction is made between the extension of the role of the pharmacist in terms of everyday activities and the extension of the role of the pharmacist in terms of provision of new services. The previous regression analysis looked at the factors affecting the everyday activities of pharmacists, the following analysis investigates the factors affecting the involvement of pharmacists in the extended role services.

7.4.2 Simple comparisons of involvement and non-involvement in extended role activities

A new variable, EXTENDED, was computed. Pharmacists who were involved in at least one of the extended role services were given the value 1, whilst those not involved in any extended role services were given the value 0. There were 197 (44.6%) pharmacists who were not involved in any of the extended roles services suggested, whilst 245 (55.4%) were involved in at least one of the suggested services. Initially the two groups were compared across a number of variables to detect statistically significant differences using chi-square (See Table 56). The significant differences were observed in the following variables:

- the number of full time pharmacists in the pharmacy. More than expected were involved in extended services with the presence of two or more pharmacists.

- the presence of qualified and non qualified dispensary support, again more than expected were involved in extended services with the presence of qualified and non qualified dispensary support.
- the number of other pharmacies in the vicinity, the more number of pharmacies within the area, the greater the involvement in extended services.
- workload in terms of OTC sales, the busier the pharmacy the more likely that the pharmacist is involved in extended services.
- the number of hours of continuing education, those with greater hours of continuing education were more likely to be involved in extended services.
- the number of pharmacy meetings attended, those with greater numbers of meetings attended were more likely to be involved in extended services.
- and membership of pharmacy committees, again those who were involved with pharmacy committees were more likely to be involved in extended services.

Table 56 The effect of variables on the involvement of pharmacists in extended role activities

Attribute	Description of categories	Significance and p values
Age.	Responses were categorised into incremental 5 year age groups	Not significant, χ^2=11.04, df=10, p=0.35
Gender.	Male and female.	Not significant, χ^2=1.89, df=1, p=0.17
Pre-registration training.	Hospital, community, split with industry or community and hospital.	Not significant, χ^2=2.54, df=3, p=0.5
Description of clients	Mainly local residents, mainly people who work in area, mainly town centre shoppers, A mixture of people	Not significant, χ^2=6.04, df=3, p=0.11
Socio-economic class of clients.	Mainly working class, mainly middle class, mixed middle and working class.	Not significant, χ^2=0.79, df=2, p=0.67
Number of full-time pharmacists.	One, two, three and four or more pharmacists working in the pharmacy	**Significant, χ^2=11.68, df=3, p<0.05**
Presence of qualified dispensary support	Yes and No	**Significant, χ^2=3.95, df=1, p<0.05**
Presence of non qualified dispensary support	Yes and No	**Significant, χ^2=4.88, df=1, p<0.05**
If they have met the local Doctors	Yes most of them, Yes one or two of them, No	Not significant, χ^2=2.83, df=2, p=0.24
How well do you know the local doctors	Socially, only in relation to work, socially and in relation to work	Not significant, χ^2=1.49, df=2, p=0.22
Type of pharmacy company.	Independent, small multiple with less than 5 branches, multiple with 6-20 branches, multiple with 21-100 branches and a large multiple with over 100 branches, I work in more than one pharmacy, I work in an office.	Not significant, χ^2=5.43, df=6, p=0.49
Employment status	Proprietor /director, employee or regular locum, locum, other.	Not significant, χ^2=7.16, df=3, p=0.07

Table 56 continued

Attribute	Description of categories	Significance and p values
If based in a health Centre	Yes and No	Not significant, χ^2=0.04, df=1, p=0.83
The location of the pharmacy.	Town/city centre, inner city, suburban, rural and out of town shopping centre.	Not significant, χ^2=8.88, df=5, p=0.06
The number of years since qualified	Responses were categorised into 11 categories	Not significant, χ^2=15..87, df=10, p=0.10
The number of years in present job	Responses were categorised into 9 categories	Not significant, χ^2=8.34, df=8, p=0.40
Number of medical practices in the vicinity	Responses categorised into 4 categories	Not significant, χ^2=7.48, df=3, p=0.06
Number of other pharmacies in the vicinity	Responses categorised into 4 categories	**Significant, χ^2=11.87, df=3, p<0.05**
Workload in terms of OTC sales.	These were subjective assessments of busy, very busy, average, quiet and very quiet.	**Significant, χ^2=11.69, df=4, p<0.05**
Workload in terms of dispensing.	These were subjective assessments of busy, very busy, average, quiet and very quiet.	Not significant, χ^2=2.81, df=4, p=0.56
Number of hours of continuing education	Responses were categorised into 7 categories	**Significant, χ^2=17.06, df=6, p<0.05**
Number of pharmacy meetings attended	Responses were categorised into 8 categories	**Significant, χ^2=33.34, df= 7, p<0.05**
Are you a pharmacy committee member	Yes and No	**Significant, χ^2=17.89, df=1, p<0.05**

7.4.3 Logistic regression analysis

The simple comparisons described above can not take into account the confounding effects of the other variables, nor can they investigate the effect of continuous variables such as the Factors 1 to 6. Therefore one needs to carry out a regression analysis. However, the new variable that was computed, EXTENDED, is a non-parametric variable. Thus the multiple regression analysis that was employed in the previous section can not be used here. Logistic regression analysis is the regression analysis which is suitable for the non-parametric data. Logistic regression analysis was therefore carried out to take into account possible confounding and to investigate the effect of other continuous variables such as the underlying concepts of the statements derived from the factor analysis described earlier.

The logistic multiple regression analysis, however, revealed only two statistically significant variables in predicting involvement in the extended roles (see Table 57). These variables were FACT_3, which relates to pharmacists' perceived importance of doctor patient relationships and LONGQUAL which is the number of years since qualification. Once again it is difficult to interpret the effect of FACT_3 on involvement in extended role activities. However, the correlation coefficient for LONGQUAL is negative implying that the greater the number of years since qualification, the less likely the pharmacists are to be involved in extended roles.

Table 57 Logistic regression model for involvement in extended role activities (EXTENDED)

---------- Variables in the Equation ----------

Variable	B	S.E.	Wald	df	Sig	R	Exp(B)
FAC3_1	-1.1306	0.4437	6.4927	1	0.0108	-.2952	0.3228
LONGQUAL	-0.0852	0.0431	3.8990	1	0.0483	-.1919	0.9183
Constant	2.7204	1.0604	6.5815	1	.0103		

---------- Model if Term Removed ----------

Term Removed	Log Likelihood	-2 Log LR	df	Significance of Log LR
FAC3_1	-24.303	8.105	1	0.0044
LONGQUAL	-22.572	4.643	1	0.0312

---------- Variables not in the Equation ----------

Variable	Score	df	Sig	R
PREREG	0.7025	3	0.8726	0.0000
PEOPLE	2.1725	2	0.3375	0.0000
SOCIO	2.4976	2	0.2868	0.0000
PHARNUMB	0.0903	1	0.7638	0.0000
GENDER(1)	1.7893	1	0.1810	0.0000
METDOC(1)	0.8372	1	0.3602	0.0000
KNOWDOC(1)	0.0189	1	0.8906	0.0000
JOBTITLE	3.8910	7	0.7922	0.0000
TYPPHARM	2.9749	5	0.7038	0.0000
HELTHCEN(1)	0.6566	1	0.4178	0.0000
LOCATION	1.1951	4	0.8789	0.0000
NUMPRACT	2.6174	1	0.1057	0.1094
NUMPHARM	3.0337	1	0.0816	0.1416
OTCWORK	2.3742	4	0.6673	0.0000
PRXWORK	1.3886	4	0.8462	0.0000
COMMITE(1)	2.1265	1	0.1448	0.0495
FAC1_1	0.9926	1	0.3191	0.0000
FAC2_1	0.0326	1	0.8568	0.0000
FAC4_1	1.5311	1	0.2160	0.0000
FAC5_1	0.3494	1	0.5545	0.0000
FAC6_1	2.9579	1	0.0855	0.1363
YERINJOB	0.0940	1	0.7591	0.0000
AGE	0.2000	1	0.6547	0.0000
DRUGTPW	0.2946	1	0.5873	0.0000
CLARYTPW	0.0101	1	0.9199	0.0000
NONPXTPD	0.0479	1	0.8268	0.0000
PRXTPD	0.0956	1	0.7572	0.0000

7.4.4 Discussion

From the simple comparisons, those pharmacists who worked with a number of other pharmacists, had more dispensary support, higher workload in terms of OTC sales, were more likely to be involved in extended role activities. Similarly those pharmacists who worked in areas where there were more pharmacies in the vicinity, had carried out more hours of continuing education and attended more pharmacy meetings and were members of pharmacy committees were more likely to be involved in extended role activities.

More sophisticated analysis in the form of logistic regression showed only two significant variables, namely Factor 3 and the number of years since registration. Factor 3 represents the pharmacists perceived importance of doctor patient relationships. As in the previous section it is difficult to interpret the exact effect of this variable on the involvement of pharmacists in extended role activities. This is nevertheless a very interesting finding which will be discussed further in chapter 8. The effect of the number of years since registration on involvement in extended roles is negative and implies that pharmacists who have been qualified longer are less likely to be involved in extended role activities. This implies the importance of pharmacists' training and socialisation.

CHAPTER 8 DISCUSSION AND RECOMMENDATIONS

8.1 Introduction

Chapter 1 showed the historical and present context of the development of the role of the community pharmacist. Chapter 2 has reviewed the literature in this area and presented the limitations of the studies to date. In particular there has been a lack of focus on the everyday practice of community pharmacists and a lack of sophistication in the methods and analysis employed. These limitations have meant that the factors affecting the extended roles are not totally understood[47]. This thesis has tried to investigate the influences on the different proposed roles by focusing on every day work of pharmacists. The methodologies employed in this investigation are outlined in chapter 4, and consist of an exploratory qualitative approach, whose themes were incorporated into a quantitative national survey of community pharmacists. The findings of the qualitative approach and their incorporation into the survey are described in chapter 5. Chapters 6 and 7 present the findings from the survey.

The aims of this chapter are to summarise and explain the implications of the findings in the context of existing research, and to make recommendations for future development of the extended roles of pharmacists according to the findings of this study.

8.2 Implications of the findings

8.2.1 Descriptive and analytical themes

The descriptive themes in chapter 5 highlighted several issues which have an influence on the extended roles of the pharmacists. Although other studies have implied the importance of these factors, they have considered them in isolation and discussions of their implications on the extended roles are therefore limited (see section 2.7). This is demonstrated in the studies investigating the advice provided by pharmacists in responding to symptoms. These studies found that despite knowledge of the clinical case and standards for providing advice, pharmacists consistently did not provided adequate and appropriate advice[58-60,68,105]. In addition a number of studies have found variations in pharmacists' advice giving behaviours . However, adequate explanations for these findings are not provided[52,108,109]. The findings of this study have uncovered important issues in the social environment that pharmacists work in. These issues are inter-related and help to understand pharmacists' practice behaviours.

In this investigation most of the extended roles were seen by the pharmacists as optional / extra activities which could or could not be provided. Harding et al state that the provision of services based on goodwill of the pharmacist is not a satisfactory arrangement since there is no obligation to provide or maintain standards of the service[85]. The extended role activities were seen to place more pressure on the pharmacists in terms of their personal responsibility and their daily routine[336,337]. Thus, in line with the findings of a number of studies, completely new services were discounted unless other provisions such as extra funding and extra staff were made available[56,74,146,148,150,154,157,161,181,200,338].

The pharmacists placed a high priority on the dispensing procedure whose emphasis was on the accurate and efficient supply of medicines, rather than the provision of extended advice and information. This finding is consistent with a number of studies which have reported the importance of dispensing activities[69, 151] and a low proportion of advice accompanying dispensed medicines [53,55,95]. The pharmacists were happy to delegate some of the activities of the dispensing procedure but were not prepared to

relinquish the overall responsibility of the dispensing process[146,148,200]. Thus the proposals to rationalise pharmacists' time by delegating responsibility seem to be constrained. This was also the case with treatment of minor ailments and sale of medicines in which pharmacists were generally happy to delegate certain activities but retain overall responsibility[168]. Interestingly John et al found that the recent protocols for the sale of medicines had not eased the workload of the pharmacists, but they had led to pharmacists spending more time on the "counter" advising people[168].

Advising people on medicines, however, presented difficulties for pharmacists who reported that they had to be careful not to upset the person requesting a medicine. They reported a need for additional training, not to ascertain the cause of the symptoms presented as suggested by a number of researchers[77,157], but to avoid upsetting the consumer[169,339]. Similarly to the findings of a number of other studies, the pharmacists also reported being placed in difficult situations of making a judgement on the diagnosis made by a doctor and thus disrupting the doctor patient relationship[172,195,287]. This was the case especially in provision of information on prescribed medicines and a consideration in intervening on prescriptions.

From the descriptive findings several common issues were identified. These are referred to in chapter 5 as analytical themes. These themes go beyond the literature reviewed here since they report on how pharmacists justify their actions and perceptions. The analytical themes are described in detail in chapter 5. They include: financial considerations, people's expectations, working practices, relationships with doctors, and pharmacists' definition of their own roles.

Financial considerations and remuneration have consistently been found to be the main barrier to provision of extended services [56,74,146,148,150,154,157,161,181,200,338]. However, the extent of the influence has not been previously discussed. In this study the financial considerations had implications for the relationships that pharmacists had with people who come into the pharmacy and with prescribers. Finances also determined the priority placed on certain activities such as dispensing as opposed to extended roles. The risk of reducing the finances of the pharmacy by upsetting people who directly affect the finances also influenced the communications that pharmacists had. The lack of

finances also placed a limit on the activities that pharmacists carried out. Thus extended services were not provided and tasks carried out by pharmacists were not delegated.

As in a number of other studies, pharmacists reported perceptions of people's expectations[152,340,341]. These not only influence the activities that they perform, but also the way that they carry out these activities. Although pharmacists reported that individuals had different expectations, they also reported a perception that the majority of people expect a fast service regardless of whether they have brought in a prescription to be dispensed or if they have requested an OTC medicine. Thus a fast service is given higher priority than the need for advice and the intervention of the pharmacist. This is contrary to the extended roles suggested for pharmacists. Similarly to the findings of Britten et al the issue of a lack of public demand for the extended services also limits pharmacists' activities in such services [287].

Pharmacists are required to carry out a number of activities simultaneously, and this limits the time that they have to carry out the proposed activities. Working practices have been adopted to free up the pharmacist's time. These include delegation of certain activities [108,109,56,97,337] provision of a fast service [337,336] , rationalisation of time spent with people [152,157] and viewing repeat prescriptions as requiring less attention [53] . These working practices have implications for the extended roles of the pharmacists. For example recent reports [34,35] have made recommendations for pharmacists to monitor patients' drug therapy by reviewing repeat prescriptions. Clearly pharmacists' perceptions regarding repeat prescriptions need to be altered to allow adequate monitoring.

The proposed activities of pharmacists extend their traditional role to what the pharmacists themselves consider to be the traditional role of the GP as observed by a number of researchers [4,7,278,279,283-287]. The pharmacists feel that GPs can affect the finances of the pharmacy by directing patients away from the pharmacy. Pharmacists also feel that GPs can monitor pharmacists' activities in terms of dispensing of prescriptions and to some extent in terms of advice given to people, and can report pharmacists to health authorities if they step outside the regulations governing their activities. However, good relationships with GPs can also empower pharmacists to carry out certain activities outside the remit of the regulations by ensuring that they are

not subject to disciplinary action. For these reasons pharmacists try to maintain their relationships with GPs. Working practices have developed to maintain this relationship. Pharmacists are reluctant to intervene on prescriptions unless they are well recognised interactions or they have good relationships with the GP [279,285] . They communicate their concerns to the GP in a non confrontational manner. In providing information to people on prescribed medicines, the pharmacists are careful not to provide information that could disrupt the doctor patient relationship[171] , which would in turn disrupt the pharmacist relationship with the GP. Once again these relationships have implications for the extended roles. For example pharmacists feel extended services such as prescribing advice lacks support from GPs and could potentially provide a confrontational situation with the GPs, hence they have reservations about it.

The pharmacists' perception of their own role is important in determining the extent and nature of the activities that are carried out as demonstrated in the early pilot projects [56,83,80] . To many of the interviewees pharmacists' main role was one of accurate and efficient supply of prescriptions. Many of the analytical themes described above impact on the activities carried out by pharmacists and thus the definition of their role. In addition pharmacists cited training, remuneration and regulations such as contracts with the health authority, ethical guidelines and legislation as methods of justifying this role. These factors are therefore very important if pharmacists are to routinely undertake the extended role activities suggested for them as part of their every day work.

The qualitative themes can be understood in terms of the sociological concepts outlined in chapter 3. Of particular importance are the concepts of division of labour in the health care field and the market for pharmacy services [5,7,8,249,269,282] . Thus pharmacists' perceptions of the importance of relationships with GP and views of their own responsibility can be explained in terms of division of labour in which the overall work is subdivided into limited activities performed by separate workers. The importance of finances and people's expectations are related to the market environment in which pharmacy operates[152, 157, 161, 249].

8.2.2 Quantitative Findings

The purpose of the qualitative stage of this project was primarily to inform the design of the questionnaire survey. Chapter 5 has described the incorporation of themes derived from the quantitative analysis into the questionnaire. The findings of the qualitative stage of the project were operationalised quantitatively in a number of ways. First, statements representing these findings were constructed and pharmacists were asked to rank their agreement with / importance of the statements. Pharmacists' responses to these statements are shown in chapter 6. Second, vignettes were constructed which considered a combination of factors on pharmacists reported behaviour. Third, regression analysis in chapter 7 investigated the effect of a number of variables including factors representing the statements, on the extended roles of pharmacists (see section 7.3.3 and 7.4.3).

As discussed previously the extended roles of the pharmacists consist of a mixture of the extension of pharmacists' daily activities such as interventions on prescriptions and advice on minor ailments as well as the provision of new services such as diagnostic testing.

Provision of extended services

The vignette in question 10 investigated the willingness of pharmacists to provide a range of extended services under a number of differing social contexts. It was found that pharmacists were generally unwilling to provide services with the provision of adequate training, but no additional payments. They were found to be willing to provide services with the provision of adequate additional training alongside adequate additional remuneration as part of their terms of service with the health authority. This demonstrates the influence of the market for pharmacists extended role services and is confirmed by the importance attached by pharmacists to statements such as the presence of "public demand and willingness to pay for extended services" and "appropriate remuneration system". The influence of division of labour was demonstrated by the importance attached to statements such as "if local doctors wanted the services" and by the finding in the vignette that if the local GPs were not favourable towards the provision of the extended role services, despite the provision of training and additional remuneration, pharmacists reported themselves unwilling to provide the suggested extended services. This was especially the case for clinical extended services

such as monitoring of patients' drug therapy as opposed to provision of compliance aids. The Logistic regression on current involvement in extended role services only showed two statistically significant variables: pharmacists perceptions of the importance of doctor-patient relationships (Factor 3) and the number of years since registration. Thus the doctor-patient relationship has the effect of maintaining the division of labour and pharmacists' roles in the overall area of healthcare, and changes in training that have occurred in pharmacy influence their current and future extended roles.

Interventions on prescriptions

In terms of interventions on prescriptions concerning drug interactions, a number of statements were shown to be important, including the approachability of the prescriber, the severity of the interaction and confidence in suggesting an alternative. These pointed to the knowledge base of the pharmacist and the prescriber which was used to determine responsibilities concerning interventions on prescriptions and drug interactions. For example over two thirds of the respondents agreed that their role in intervening on prescriptions was to inform the prescriber of the problem and it was for the prescriber to determine if the interaction was significant. It was not the pharmacist's role to determine alternative therapies, as demonstrated in the vignette (in question 12) which showed that pharmacists were not willing to intervene "on a prescription for an outmoded drug therapy to which there is a better alternative ". Similar findings were also reported in the vignette (in question 23) in which the majority of pharmacists were reluctant to substitute another antibiotic on a prescription.

The interviews also revealed that interventions on prescriptions especially those requiring more clinical knowledge presented difficulties for pharmacists. It was also revealed that a number of working practices had been adopted such as only intervening on major drug interactions, and assumptions that drug interactions on repeat prescriptions were not problematic. This point was demonstrated quantitatively in that clinical interventions on prescriptions were significantly lower than management interventions. In addition the vignette (in question 12) showed that pharmacists were more likely to intervene on legal problems as opposed to clinical problems with prescriptions. The vignettes in question 12 and 23 also showed the importance of relationships with GPs which influence pharmacists' decisions concerning patient care.

Regression analysis on the number of clinical interventions on prescriptions revealed several statistically significant variables. These included the presence of qualified dispensary support, considerations in drug interactions (Factor 1), location of the pharmacy, and external influences on pharmacists' roles (Factor 6). Again these findings can be understood by considering the knowledge base in relation to drug interactions, which are represented by considerations in interventions. Interestingly the division of labour in the pharmacy is also important in that the presence of qualified dispensary support affects the number of clinical interventions made. The importance of the concept of overall division of labour was again demonstrated in that external influences on pharmacists' roles, such as company policy, training, and if local doctors wanted the service, influenced the number of interventions made.

Pro-active provision of advice and information

An important influence on the pharmacists' decision to provide advice was reported to be people's expectations. However, a major barrier was reported to be the lack of time to provide advice. Working practices had been adopted to rationalise the pharmacists' activities and pharmacists had to prioritise their activities. The influence of these factors was confirmed by several findings. The influence of consumer expectations was confirmed in agreement with statements such as having to "make sure people are satisfied otherwise they would not come back to the pharmacy" and making sure that people are not upset and worried in any communications in the pharmacy. The vignette (in question 11) also showed that with increasing workload pharmacists prioritised their activities, being more likely to give advice to people with a new prescription and those who specifically ask for advice as opposed to people who ask for a product by name, bring in repeat prescription, or pick up leaflets on health promotion topics. The priority given to dispensing is demonstrated in the finding that pharmacists are less likely to provide advice in busy periods due to dispensing workload.

The regression analysis of the provision of information on prescribed medicines showed three variables to be significant: workload of the pharmacists in terms of prescription; OTC work; Factor 4 representing the organisation of work in the pharmacy. In terms of provision of advice on non-prescribed medicines, only two variables were shown to influence the number of times pharmacists provide advice on non-prescribed medicines. These were the gender of the pharmacist and the workload in terms of OTC work.

Once again these findings can be explained in terms of the division of labour within the pharmacy, which influences the number of times pharmacists provide advice on prescription medicines. The overall market for health care and consumer demand within which pharmacy operates explains the importance pharmacists attach to people's expectations, as well as the influence of workload in terms of both prescription and OTC sales on the provision of advice. In addition the NHS market which directly pays for dispensing services influences the priority attached to this activity.

Recent criterion for pharmaceutical care of patients requires pharmacists to accept responsibility for drug therapies and be pro-active in intervening on prescriptions and providing advice on both prescription and non-prescription medicines. The findings of this study have shown variations in pharmacists' practice behaviours as well as explaining to some extent the reasons behind these variations and the barriers to good quality patient care. The majority of the reasons behind the variations and the barriers have been found to be socially constructed rather than logically determined. For example pharmacist-doctor relationships as well as doctor-patient relationships influence pharmacists' decisions on whether to intervene on a prescription with a drug interaction and the nature of the information provided on medicines. In some circumstances these relationships mean that patient care according to the recent criterion are compromised.

However, it must be noted that the criterion for patient care has also evolved to its current state. Only relatively recently has there been a shift away from the paternalistic orientation of "the doctor knows best" to a consumer orientation of making informed choices about treatments. In addition pharmaceutical care of the past required pharmacists to supply medicines accurately and efficiently. Although evolving, pharmacists' social environment of regulations, expectations, working practices, finances and training, is primarily orientated towards ensuring the past criterion of pharmaceutical care of patients rather than the recent criteria.

8.3 Factors affecting the extended role of the community pharmacist

8.3.1 Progressive division of labour and the market for health care

This thesis has highlighted several issues affecting the extended role of the pharmacist. These factors are inter-related and are part of processes which have shaped the roles of the occupations involved in health care, including community pharmacists. Chapter 1 gave a brief description of the historical context of the changing roles of pharmacists. Initially there were a number of groups whose livelihood was dependent on the sale of remedies and treatments for ailments. Struggles between the groups resulted in formal occupational organisations whose purpose was to further the privileges of their members both in terms of status and finances. These organisations used state intervention to gain monopoly of the market for their services. Education, training and the knowledge-base of the occupation were also developed to exclude groups outside the occupation from providing services in the market for healthcare. As the state became involved in the provision of health care, the proposed state organisation of health care services was used to define specific areas of responsibility for the different occupations based on their knowledge base. Thus the emerging division of labour was formally legitimised with prescribing and decisions regarding treatments becoming the exclusive responsibility of the medical occupation and compounding, dispensing and supply of medicines becoming the responsibility of the pharmaceutical occupation.

New areas of knowledge promoted by pharmacists led to technological developments in the pharmaceutical field which in turn led to a number of changes in the market for services and subsequently further division of labour. The new areas of knowledge were related to the discovery of new drug entities and mass production of medicines and became known as "pharmacology" and "pharmaceutics". The consequence of this was the growth of the market for treatments of ailments and further changes in the division of labour in that the pharmaceutical industry undertook compounding of medicines with new technologies such as tabletting machines. For community pharmacists the proliferation of the new drug entities placed greater emphasis on the efficient and

accurate supply of medicines which was legitimised by liability cases and incorporation into the codes of ethics.

The proliferation of new drug entities as well as the loss of the compounding services of pharmacists in the market led to yet another area of knowledge being developed and promoted by pharmacists. This area of knowledge focused on the appropriate use of medicines to maximise patients' therapy and became known initially as "clinical pharmacy" and later as "pharmaceutical care".

At the same period of time, the policy of the state on provision of health care was undergoing considerable change. The initial ethos of "a pill for every ill" changed to "cost-effective drug therapy", thus creating a market for the new area of knowledge promoted by pharmacists. The overall market for health care was also affected by the state policy on shifting the responsibility of health from the state to individuals and by the consumerist movement. The state policies encourage new ways of delivering health care thus deregulating the formal division of labour. The consumer movement has also meant that alternative sources of health care advice and treatments can be developed and utilised.

The suggested extended roles of the pharmacists impact on both the NHS market and the overall market for health care. Involvement in prescribing issues implies a role in the division of labour in the NHS market, whilst involvement in health promotion and responding to symptoms implies a role in provision of helath care in competition to the NHS market. These roles were in line with the state policies described above. Several occupational strategies have been used to promote the implementation of these extended roles. These include changes to the education and training of pharmacists, changes to the code of ethics of the pharmacists, consultations within and outside the occupation, ensuring inclusion in state legislation concerning health care and the development of research to highlight the importance of pharmaceutical issues. These strategies are aimed at legitimising the extended roles of pharmacists.

Despite these efforts, as found in this thesis, the extended roles create difficulties for practising pharmacists since many are outside the boundaries of what they consider as the role of the pharmacist and within what is considered the role of GPs. In addition the

pharmacists claim that the markets for these extended roles do not exist at the present time. However, although not reported in this thesis, a number of pharmacists interviewed revealed "role making" strategies which they had used to extend their roles and obtain remuneration.

8.3.2 Changing the role of the pharmacist

The extended roles suggested for pharmacists have benefits for consumers, health service efficiency and public health. Assuming that it is desirable to extend the role of the pharmacist, the findings of the study have several implications for policy makers, educators and practising pharmacists. Taking into account the specific findings of this study, a number of recommendations can be made which could influence pharmacists' practice behaviours and involvement in extended role activities:

- Pharmacists' work practices not only concern the activities carried out by different people within the pharmacy, but also the assumptions that pharmacists hold. The assumptions include the importance of a fast service; priority of dispensing; assumptions about repeat prescriptions and drug interactions. It is recommended that pharmacists delegate activities and responsibilities to qualified dispensing technicians and for strategies to be developed to change assumptions conflicting with the extended roles of pharmacists.

- The finances of the pharmacy are very important. As shown in this thesis, these considerations influence priority attached to activities, as well as the communications held with prescribers and consumers. It is recommended that remuneration systems are developed to directly link payments to the desired activities of pharmacists.

- Relationships with GPs were shown to be very important to pharmacists in determining the extent of practice behaviours such as the provision of information to patients, interventions on prescriptions and involvement in extended role activities. It is recommended that the extended roles are negotiated with GPs and legitimised through development of formal guidelines for activities such as treatment of minor ailments, interventions on prescriptions, and feedback on prescribing issues.

- Pharmacists perceptions of people's expectations are very influential due to the consumer environment in which pharmacy operates. The occupation has already employed strategies of facilitating changes in the consumer expectations with some success. For example the "Ask your pharmacist" campaign and the Consumer Association criticism of pharmacists have raised expectations. It is recommended that further strategies are developed and employed.

- Pharmacists must also justify the extended roles as part of their own role, not just as optional extras. Pharmacists may use a number of ways to justify their current roles, these include legislation, ethics, education, job descriptions, and payments for services. For example making a legal requirement for pharmacists to make appropriate interventions on prescriptions and to provide information on prescribed medicines, would greatly increase activity in this area. In addition a change in the emphasis of the terms of service of pharmacists with the health authority from supply of medicine to provision of extended services would facilitate extended role activities. It is therefore recommended that strategies should be developed to legislate for pharmacists extended activities, to provide ethical guidelines for these activities and to re-define pharmaceutical services.

- Since the extended roles need to be justified to pharmacists it is recommended that implementation of new activities and services should be initially related to pharmacists current roles, as opposed to implementation of completely new services.

- It is recommended that pharmacists are made aware of the processes that have shaped their current roles and the strategies that could be employed to extend their roles.

- Despite the current difficulties in extending the role of the pharmacist, some of the pharmacists interviewed described their own role making strategies to extend their roles. These pharmacists also reported on role making strategies employed in their health authority. It is recommended that further studies investigate role making strategies of innovative practitioners as well as the role making strategies of pharmacy leaders.

- The training of pharmacists was shown to be important in that newly qualified pharmacists were more likely to be involved in extended role services. It is recommended that future studies investigate the socialisation of pharmacy students. It is also recommended that role making becomes part of the training and socialisation of pharmacists.

- The gender of the pharmacist was also shown to influence pharmacists practice behaviours such as provision of information and interventions on prescriptions. It is recommended that future studies investigate gender issues in pharmacy.

- In terms of methodology it is recommended that the future focus of investigations of pharmacists' extended roles should initially be the understanding of everyday activities. This is best achieved using qualitative methodologies. However, combination of methods should not be discounted. The use of vignettes and factor analysis as combinations of qualitative and quantitative methods should be further encouraged.

8.4 Conclusion

The aim of the study was to investigate the factors affecting the extended roles of the community pharmacist. The initial approach to the investigation was exploratory employing a qualitative methodology. This methodology highlights the importance of context of the study, both in terms of the research question, method of investigation as well as the influences on the researcher. The context of the study and the influences on the researcher are described in chapters 1 and 2 which focus on the historical development of the roles of pharmacists and the previous pharmacy practice research. The importance of context was further demonstrated in the interviews where the pharmacists reported variations in practice behaviour. These differing contexts were incorporated into a national survey of pharmacists. The findings of the study have been explained in terms of sociological concepts relating to the division of labour in the market for health care services.

The factors affecting the extended roles of community pharmacists are part of the same processes which have shaped pharmacists' current roles, namely occupational strategies and struggles to further the interest of members, development of new areas of knowledge, progressive division of labour and changes to the market for provision of healthcare. Specifically this study investigated the everyday issues that have an influence on the roles of pharmacists. These included pharmacists' work practices, relationships with GPs, consumer expectations, financial considerations and pharmacists' own justification of their role. It is concluded that new roles need to be legitimised to pharmacists for them to become everyday pharmacy practice. This legitimisation process includes the training and socialisation of pharmacists, incorporation of activities into the codes of ethics, the justification of the usefulness of the knowledge base through research, recognition by both the state and other occupations especially medicine, and provision of direct payments for activities.

Appendix 1 Historical events and their significance

Legislation or event	Significance of the legislation / event
1841	Pharmaceutical Society founded "to benefit the public and elevate the profession of pharmacy, by furnishing the means of proper instruction".
1842	The Society's School of Pharmacy set up in 1842 to provide a complete course in the basic sciences and their application to pharmacy. In the 1870s local chemist and druggist associations were asked to provide courses which apprentices could attend. The local associations were given grants to provide such courses. These courses were held at local universities and colleges. The late 1870s saw the opening of privately owned schools of pharmacy, mainly in London. In the 1890s more of these schools were started in the provinces. By the late 1890s courses in pharmacy were also being offered in public colleges and universities.
1843	The Pharmaceutical Society's charter. This empowered the society to regulate the education and admission of its members. Its aims were : • The advancement of chemistry and pharmacy • Promotion of a uniform system of education for its practitioners • Protection of those who carry on the business of Chemist and Druggist. • Relief of needy members, associates and their widows and orphans.
1852	Pharmacy Act. This act empowered the society to conduct examinations by means of two boards (England and Scotland) and to grant certificates of qualification for "pharmaceutical chemist" and "pharmaceutist" and thus restricting the title to those legally registered. (Medical practitioners could not be registered, although they could and did dispense drugs.). Although the title was legally restricted, practice by chemist and druggists and others not registered with the society continued.
1858	Medical Act. This act drew a sharp line of demarcation between those practitioners who were qualified and entitled to register as medical practitioners, and those who were not. The act drew up a medical register which was published in 1859 in three parts. These parts included physicians, surgeons and apothecaries. Thus a legal fence was put between these three medical occupations and the pharmaceutical chemists. It is argued that the 1852 Pharmacy Act made the exclusion of pharmaceutical chemists from this register easier.
1868	Pharmacy Act. Prior to this act, there was no obligation for chemist and druggists to take the major examinations of the Pharmaceutical Society and register with the pharmaceutical society. The 1968 Pharmacy Act made qualification and registration compulsory for all chemist and druggists engaged in the business of selling poisons. The tittles "chemist and druggist", "chemist", "druggist", "pharmacist" and "dispensing chemist or druggist" were restricted for those registered with the society. The society kept two registers, one of the pharmaceutical chemists who had passed the society's major examination and a register of chemist and druggists. After this date the qualification for registration onto the chemist and druggist became the passing of the minor examination. The act also made provisions for cautionary sales of poisons. Poisons in schedule 1 could only be sold to persons known by the seller, an entry had to be made in the poisons register. The container of the product had to clearly labelled "poison" and carry the name of the product and the address of the seller. Poison in schedule 2 had to comply with the labelling instructions only. Medicines containing poisons had to have the same labelling instructions, but entry of their sale was made into a "prescription book". Only pharmacists and medical practitioners were legally allowed to sell poisons. The Pharmaceutical Society were given powers, subject to consent of the Privy Council, to determine which substances should be included in the two Poisson's schedules.

Legislation or event	Significance of the legislation / event
1896	Formation of Proprietary Articles Trade Association. During the latter part of the 19th century the commercial environment in the country went through major developments. Mass production flooded the drug market with "proprietary medicines" and manufacturer's advertisement increased their sales. Large company chemists such as "Boots" emerged from this period. Their rise was partly due to the practice of "cost cutting" proprietary medicines. This presented a great challenge to the independent chemist and druggists who could not compete with such cost cutting strategies. Independent chemists set up the P.A.T.A. to combat this situation. This association set up an agreement between manufacturers, wholesalers and retailers (including eventually company chemists) not to cut the cost of proprietary medicines. This in effect set up "Resale Price Maintenance" which is still in effect today. It meant that independent chemist and druggists could survive, manufacturers could maintain a constant profit margin and that chemist and druggists would not substitute their brands.
1908	Poison and Pharmacy Act. This act was brought about mainly because of the government desire to improve access whilst controlling agricultural poisons. The issues within pharmacy that were resolved by this act was the growth of company chemists who employed non-qualified personnel and who used the titles "chemist and Druggist". The pharmaceutical society managed to retain its control of the poisons schedule. It brought companies in line with professional regulations and made them subject to the legislations on poisons, and it reserved the right for qualified chemists titles which distinguished them from companies of unqualified persons. There were four sections to this act: • Section 1. This revised and rationalised the Poison Schedules of the 1868 Pharmacy Act. The Pharmaceutical Society retained its power to deem a substance a poison and acquired new powers to ask for the removal of any substance from the schedule or its transfer from one part to another. • Section 2. Licenses could be granted by local authorities to dealers, other than registered chemists, to sell agricultural poisons. • Section 3. Legalised the position of limited companies carrying on the business of chemist and druggist. The provision was that the poison department was under the control and management of a legally qualified superintendent whose name was registered with the Pharmaceutical Society and who did not act in a similar capacity for any other body. If the business was not carried out by the superintendent, it had to be under his direction, by a qualified manager whose certificate of qualification was required to be exhibited in the shop. If the superintendent was also a member of the board of directors, then the company could use the descriptions "chemist and druggist", "chemist", "druggist", "dispensing chemist" or "dispensing druggist". • Section 4. Extended the powers of the pharmaceutical society to make by laws governing the courses of study and the examinations to be taken by candidates for registration. • Section 5. By this section, sulphuric, nitric, and hydrochloric acid and soluble salts of oxalic acid could be sold, if suitably labelled, by anyone.
1911	National Health Insurance. This was a significant act for pharmacists in that it excluded non-registered chemist and druggists from dispensing physicians prescriptions and separated dispensing from prescribing for people under the scheme. This act went a considerable way in giving pharmacists registered with the Pharmaceutical Society a monopoly over dispensing of prescriptions.
1920	The return of service men from the war and the need to retrain them in new occupations enabled the Pharmaceutical Society to divide the qualifying examination into two parts, the practical and scientific and for establishing a curriculum with specified courses of study at recognised teaching institutions. An apprenticeship of 4,000 hours was another essential, either wholly in retail pharmacy or half in retail and half in hospital.

Legislation or event	Significance of the legislation / event
1920	The Jenkin v The Pharmaceutical Society case. The background to this case was the reorganisation of industrial relations proposed by Lloyd George in 1919. The whole country was engrossed in the question of the relationship between employers and employed, about wages and working conditions. Joint Industrial Councils were set up in most industries by the Ministry of Labour. The council of the pharmaceutical Society feared that the ministry would impose minimum wage rates and other employment conditions within the drug trade. Instead it decided to set up a Whitley Council for the whole pharmaceutical industry. The council proposed minimum wages, hours and working conditions etc.. To many proprietor members, in particular the company chemists, this was a trend towards trade unionism to which there was opposition. The opposition argued that the council was not legally able to do the things it was proposing. It was decided to settle this particular argument in the courts. Arthur Henry Jenkin, a recent council member, sought an injunction to restrain the Council of the Pharmaceutical Society from undertaking certain activities. The courts ruled that the Society could neither undertake for its members, nor spend any part of its funds on, any of the following activities: 1) The regulation of hours of business, 2) The regulation of wages and conditions of employment as between masters and their employees, 3) The regulation of prices, 4) The insurance of members. This led to the formation of the Retail Pharmacist Union, which later became the National Pharmacist Union (1933) and is now known as the National Pharmaceutical Association (1977). It is argued that the formation of the R.P.U. left the Pharmaceutical Society free to concentrate on the furtherance of the professional as distinct from commercial interests of pharmacists (See 1953 and the Supplemental Charter).
1922	The council of the Society took over the organisation of the British Pharmaceutical Conference. Papers were published and disseminated.
1924	The degree of bachelor of pharmacy was instituted in the University of London Faculty of Medicine and in the following year the School of Pharmacy was admitted, within that Faculty as a school of the university. Bachelors of pharmacy could become pharmaceutical chemists by completing 2,000 hours of apprenticeship either before the degree course or after it. By the 1930s the privately owned schools of pharmacy were either taken over by public institutions or were forced to close down.

Legislation or event	Significance of the legislation / event
1933	The Pharmacy and Poisons Act. The background to this act was a Departmental Committee set up in 1926 to consider and report any modifications necessary or desirable in the Poison and Pharmacy Acts of 1908. The focus was poisons and the general feeling was to have the control of poisons removed from the council of the pharmaceutical society and to be placed within government. The committee appointed Sir William Glyn Jones, secretary of the Pharmaceutical Society to consider the fundamental question, do we need pharmacists at all or can medical practitioners do the job? It was not surprising that he reported in favour of the occupation of pharmacy. To secure the proposed changes for the control of poisons, the committee also provided for reforms in the organisation of pharmacy. The main provisions of the Pharmacy and Poisons Act were: • Every person registered with the Pharmaceutical Society became members of the Society. This ended the distinction between registration and membership of the Pharmaceutical Society. • In addition to fees paid on registration, members of the Society were required to pay fees to retain their names on the register. • The requirement that by laws of the society be confirmed and approved by a special general meeting of the Society was abolished. • The Privy Council gained the right to appoint three additional members of the Society's Council who need not be pharmacists. • A register of premises where poisons are sold was set up. • A disciplinary body, the Statuary Committee, was established. • The Statuary Committee was given the duty of inquiring into any case where a pharmacists or authorised seller was alleged to have been guilty of misconduct. The names of the persons could be removed from the register or restored to the register, and to disqualify an authorised seller from the register of premises. • The Pharmaceutical Society was placed under the duty to enforce the 1933 Act and was authorised to appoint inspectors who must be pharmacists. • The ultimate responsibility for the control of poisons was placed in the hands of the Home Secretary. • A Poisons Board was established to advise the Home Secretary on what should be included in the Poisons List. Part 1 of the list could be sold by retail only at pharmacies. Part 2 could be sold by any shopkeeper subject to certain conditions. A new Schedule was also added to Part 1. Schedule 4 comprised a group of poisons which could only be supplied to the public on the authority of a medical practitioner's prescription. (This is an important development since as newer products became available they were placed in this schedule. Control of supply of medicines became increasingly under the influence of the medical profession. As Schedule 4 grew it became increasingly obvious that the legislation was inappropriate for the regulation of the new chemotherapy era. This led to the Medicines Act of 1968.)
1935	Chemist Friends List. The P.A.T.A. and resale price maintenance had made the selling of proprietary medicines very profitable both to pharmacists and to grocers alike. The Chemists Friends List, listed proprietary medicines which were restricted to pharmacies only. By 1958 one third of all proprietary medicines were on the Chemists Friends list.
1941	Pharmacy and Medicines Act. The act was the outcome of several years effort to institute some measure of legislative control over the advertising and sale of proprietary medicines. The act required full disclosure on the label of active ingredients. It prohibited advertisement, except to the medical profession, of any article in terms which might lead to its use in certain treatments. The act also restricted channels of distribution of medicines. The resale of medicines was restricted to registered medical practitioners and dentists, authorised sellers of poisons and persons who had served a regular apprenticeship in pharmacy and who at the time of the passing of the act were conducting on their own a business comprising the retail sale of drugs.

Legislation or event	Significance of the legislation / event
1948	National Health Service Act. The establishment of the National Health Service in 1948 effectively extended the N.H.I. scheme, certainly concerning pharmaceutical services to the whole population. Holloway explains that after 1948, 94% of the population obtained their medicines from registered pharmacies. This effectively separated prescribing and dispensing in Britain, except in certain rural areas where doctors continued to practice as apothecaries.
1953	Pharmacy Act and Supplemental Charter. The main change in the charter was to replace the clause dealing with the protection of those carrying on the business of chemist and druggist by one which referred to maintaining the honour and safeguarding the interest of members in the exercise of their profession. The previous register of chemist and druggist was abolished and the names were transferred to a new register of pharmaceutical chemist. In the same year the pharmaceutical society took a high court action against Boots Cash Chemists, who had introduced self selection of medicines by the public. It was argued that such sales were not conducted under the supervision of a pharmacist. The Society lost the case.
1954	Pharmacy Act. A new register was compiled in which all pharmacists were included as pharmaceutical chemists. Those names on the register of pharmaceutical chemists before this time became Fellows of the Society (F.P.S.) and those previously registered as chemist and druggists all those registering in the future were designated Members of the Society (M.P.S.).
1962	The effects of Thalidomide became known publicly and there was widespread anxiety about the absence of safeguards to ensure that new drugs should not be put on the market before every possible step had been taken to bring the harmful side effects of new drugs to the notice of doctors.
1964	Resale Prices Act. This made the resale price maintenance of all goods, not just medicines, unlawful. Medicines were not exempted.
1967	All new pharmacy students were required to read for a degree in pharmacy, approved by the Pharmaceutical Society, and 12 months supervised practical experience before being eligible for registration.
1968	Medicine Act. The realisation of the effect of the dangers of medicines and the need for greater control and one of the mechanisms for this control was realised in 1916. The effect of narcotic drugs such as cocaine and opium on British soldiers led to these drugs only being available on medical practitioners prescriptions (DORA 40B). This was followed by the Dangerous Drugs Act of 1920 which prohibited the import of opium related drugs except under license, the sale of such drugs were restricted to pharmacists acting on medical practitioners prescriptions. The Therapeutic Substances Act 1925 regulated by license the manufacture of a number of products in terms of its purity or potency. The pharmacy and Poisons Acts of 1933 and 1941 did much to reduce the availability of poisons and medicines (see above). The Penicillin Act of 1947 and the Therapeutic Act of 1953 recognised antibiotics as substances capable of causing harm and made the provision that they were only to be supplied by medical practitioners or pharmacists acting under the authority of a doctors prescription. The Medicines Act brought together the regulation for manufacture, import, wholesale, labelling, dispensing and retail sale of all medicines. Three Classes of Medicines were introduced: Prescription only Medicines (POM), only available to the public through pharmacies at the presentation of a prescription from a registered medical practitioner. Within this class of medicines exists 5 Controlled Drug schedules with different prescription writing and storage requirements; General Sale medicines, available in all retail outlets, with certain requirements of pack size and labelling; Pharmacy medicines, all medicines not in either of the two categories, which are only available from registered pharmacies and sold under the supervision of a pharmacist.

Legislation or event	Significance of the legislation / event
1968	The Pharmaceutical Society v Dickson. The background to this case concerned the new developments of superstore by Boots Cash Chemists. In these stores a variety of goods were sold. In 1965 following a Council report, it was proposed at a general meeting that new pharmacies must be situated in physically distinct premises and must confine their trading activity to the sale of pharmaceutical, professional and "traditional" chemist goods. The Society was unable to convince the courts that the professional side of pharmacy was adversely affected by other activities.
1970	Resale Prices Act of 1964. This act made the attempt to seek to establish minimum prices for the resale of goods unlawful. There was a provision however to apply for exemptions. An application could be made by the Director General of Fair Trading, as along as without resale price maintenance, the consumer or user of goods would suffer great detriment. An application was made for medicines. This was granted because the court was convinced that medicines were fundamentally different from other foods on sale to the public.
1981	College of Pharmacy Practice formed, to promote and maintain a high standard of practice, to advance education and training in all pharmaceutical disciplines and at all levels, to establish standards of vocational training, to advance knowledge of the application of pharmacy in total health care, and to conduct, promote and facilitate research into the practice of pharmacy and publish the results.
1982	The Migril Case. The legal responsibility of pharmacists to verify and question prescriptions was established by this case. A woman who suffered from gangrene in both feet, requiring extensive surgery, as a result of receiving an overdose of Migril prescribed for migraine was awarded £100,000 damages. The pharmacist was held for 45% of the damages awarded. It was judged that the pharmacist owed a duty of care tot he patient to ensure that drugs were correctly prescribed and that the pharmacist should have spotted the doctor's error and queried the prescription with the prescriber.
1986	Nuffield Report. This enquiry published 96 recommendations on all branches of pharmacy. It started a movement in which the dispensing of medicines no longer was the only official role for the pharmacist.
1992	Pharmaceutical Care report. Followed on from the Nuffield report and made 32 specific recommendations for community pharmacy. It also provided a new ideology of Pharmaceutical Care, which included but went beyond the safe and accurate dispensing of medicines.

Appendix 2 Original proposal

1. Purpose of the study.

The purpose of the proposed study is to investigate the following questions:

1. What are the professional services available to patients in community pharmacies?
2. How frequently is the pharmacist engaged in providing those services?
3. What proportion of the pharmacist's time is spent on those services?
4. What factors influence the pharmacist's ability and willingness to provide those services?

In addition to the dispensing of National Health Service (NHS) prescriptions, community pharmacists do carry out a variety of other services of benefit to patients. These services include health promotion, responding to patients' symptoms, counselling on the use of medication, intervening on General Medical and Dental practitioners' prescribing and the supervision of the sale of medicines. However the extent of these activities is not known.

There is a need to gather information that will fully document the pharmacist's involvement and thereby provide a more precise measure of the wider contribution of community pharmacy to healthcare.

The investigation will serve the following purposes:

- Identification of the best standards of practice and variations in those standards of practice.

- The effects of selected variables on the activity patterns of pharmacists will be demonstrated to determine differences and similarities. e.g. effects of practice location, staffing levels, prescription numbers, degree of involvement in continuing education, year of registration etc.

- Enable recommendations to be formulated, from the findings of the study, to maximise the contribution of community pharmacy to healthcare.

- Encourage community pharmacists participating in this project to engage in practice research and introduce data collection which is an essential component of audit.

2. Background with supporting references

The report of the Nuffield Inquiry into Pharmacy highlighted the notable absence of information on what pharmacists actually do[1]. More recently in England there has been criticism of the lack of evidence to show what pharmaceutical services are available, other than the dispensing of NHS prescriptions[2].

Evidence of activity is important in the current and future NHS where all providers of healthcare will have to show their contribution to patient care in order to justify purchase of their services[3].

This is particularly relevant to community pharmacists given the recent changes in the remuneration system for pharmaceutical services. The introduction of the professional allowance will make a payment available to pharmacists for providing services in addition to the dispensing of NHS prescriptions, thus encouraging other service activity which will also benefit patients[4]. It is intended that, by 1995, the professional allowance will increase to the order of twenty percent of the total sum available for remunerating pharmaceutical services. Payment to individual pharmacies will be made by FHSAs[5]. In this way FHSAs will be purchasing services provided by community pharmacists.

The involvement of FHSAs or, in future, Health Commissioning Agencies, in the remuneration of pharmaceutical services may provide opportunities for the implementation of some or all of the recommendations of the Pharmaceutical Care report[6].

The introduction of some of these recommendations such as the use of referral forms and involvement in health promotion would be a simple process as some would argue that these are already being provided. A study has recently shown that, on average, the community pharmacist gives professional advice approximately 100 times a week[7]. However there have also been reports which imply that not all community pharmacists provide such a contribution to healthcare[8]. Peston[9] recently expressed the view that there has been little progress since the publication of the Nuffield Report. He emphasised the need for quality research into what community pharmacists do and why.

Clearly, there is a need to investigate what existing services are available and the factors which affect the provision of services in addition to the dispensing of NHS prescriptions. Such information would be of value to FHSAs when evaluating the present and potential contribution of community pharmacy to healthcare.

References.

1. Pharmacy. The report of a committee of inquiry appointed by the Nuffield Foundation. The Nuffield Foundation 1986.
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3. Working For Patients. HMSO 1989.
4. Reported in the Pharmaceutical Journal 1993 251: 623.
5. Stephen Allcock. Reported in the Chemist and Druggist, August 14 1993: 244.
6. Pharmaceutical Care: The future for community pharmacy. Report of the joint working party on the future role of community pharmaceutical services. Published by the RPSGB on behalf of the Department of Health and the pharmaceutical profession. March 1992.
7. Hawkesworth G M.et al. Pharmaceutical Journal 1993 251: R30.
8. Reported in the Chemist and Druggist, March 20 1993: 484.
9. Peston M. Reported in the Pharmaceutical Journal 1993 250: 475.

3. Plan of the proposed study

This project will quantify professional services in community pharmacies through an investigation of the activities of community pharmacists. There will be four studies in this project:

* Interviews with practising pharmacists to determine the services they provide and factors affecting their provision.

* A postal questionnaire survey, determining the characteristics of community pharmacies and the provision of professional services.

* A self-recording study of the activities of community pharmacists during hours of practice.

*An observational study of the activities of a sample of community pharmacists.

Pilot study of each stages of the project will be carried out to determine the variations in each study. This will consequently allow a more informed sample size to be calculated for the project.

<u>Interviews with Pharmacists.</u>

In-depth interviews will be held with pharmacists to explore the services that they provide and their attitudes to the services. This qualitative stage of the project will be used to formulate theories and questions which will be tested quantitatively in a survey.

<u>Survey of community pharmacies</u>

This survey will be representative of the community pharmacies in England and Wales. Accordingly a random sample of 1536 community pharmacies will be surveyed from the register of premises, held at the headquarters of the Royal Pharmaceutical Society.

There are two objectives to this survey. Firstly to determine the services that community pharmacies offer and to determine how frequently the pharmacist is engaged in providing these services e.g. use of patient medication records, residential homes services, dispensing of prescriptions, responding to patients symptoms, prescription collection and delivery, health promotion etc. Secondly to determine the characteristics of the pharmacy in which the services are provided e.g. the location of the pharmacy, the practice setting, the age of the pharmacist, the number of staff employed etc.

This initial survey will determine if there is any evidence of variation in pharmaceutical services and if so what factors influence the provision of services.

<u>Self recording study.</u>

The initial survey on its own however will not be enough to prove or disprove the variation in the provision of services, as the pharmacists may be giving answers which they think are appropriate. The self recording study will provide additional evidence on how pharmacists actually spend their time.

The pharmacists who take part in this study will be required to categorise and record their daily activities for a set period of time on simple forms. The pharmacists will have to be very familiar with each category so that there is little variation in the recording of each activity. This type of study will also depend on the willingness, motivation and discipline of the pharmacists taking part in the study. Accordingly the pharmacists will have to be individually briefed on the project. For this reason it is not feasible to ask all the community pharmacist who took part in the initial survey to take part in the self recording study.

A sample of 400 pharmacists will take part in this study. To reduce the cost of briefing each pharmacist it may be possible to organise evenings during which several pharmacists could be briefed on the project. For this the sample frame of the self recording study may have to be limited to community pharmacies in nine to ten FHSAs.

The Local Pharmaceutical Committees in Somerset, Hereford and Worcester and Avon, have already been contacted regarding this study and have expressed willingness to co-operate.

The self recording study will provide quantifiable data on the activities of pharmacists. Certain variables such as prescription workload or the number of staff employed could then be correlated to show their effects on the activities of pharmacists.

Observational study.

The data from the self recording study will not be detailed. Also the pharmacists, due to time constraints, may be selective in the data that they record. An observational study of the pharmacists will provide more reliable and detailed data. The observational study however will bear the greatest costs and a smaller sample of pharmacists will have to be taken. The self recording study will have revealed the variables with the greatest influence on the activities of pharmacists. It is these variables that the observational study will investigate. For example it may be revealed from the self recording study that the number of pharmacists working in one premise may have a significant effect on the total time a pharmacist spends with a patient. In the observational study pharmacies with two pharmacists will be compared to pharmacies with a single pharmacist. 135 pharmacists would need to be studied.

The results from the three studies will give an accurate picture of the daily practice of community pharmacists and the factors which influence their practice.

4. Possible timetable for the research.

October to November 1994	Talk to people about study.
October to March 1995	Literature search and review.

February to April 1995 Qualitative research on the different activities of pharmacists eg. dispensing and interventions, responding to symptoms and supervision of sales, health promotion and factors affecting activity.

April to July 1995 Analysis and development of concepts and theories which could be incorporated into a survey, and observations.

July to September 1995 Devising and piloting of survey. Devising and piloting of observation instrument.

October to December 1995 Analysis of questionnaire

October 1995 to October 1996 Observation study and analysis and self reporting study and analysis.

January 1996 to March 1996 Service development experiment.

March 1996 to January 1997 Writing up.

Appendix 3 Topic guide for interviews and ethical guidelines

- Ethical guideline
- Discussion of the purpose of the meeting.

- Background, age employment, education, work experience.
- Why pharmacy?
  Parents, school, other pharmacists, expectations? rewards?
- Public views?
- GPs views?
- Daily activities, priorities, responsibility, patient expectations. Image, hours worked etc.
- Views of dispensing. Labelling, PMR, drug interactions, side effects. Technicians
- Responding to symptoms. views, difficulties, recommendations, questioning, product selection, responsibility, protocols. POM to P
- Health promotion. Knowledge of preventative measures, screening, communications skills.
- Clinical pharmacy, views, involvement, training, inter-professional barriers.
- Dealing with GPs.
- Undergraduate training, preparation, therapeutics, continuing education, business
- management, staff, ethical dilemmas, priorities
- remuneration, views, how would you like to get paid? Contract with pharmacist, patient registration? Fees?
- Time factors. Pressures, time with patients, dilemmas?
- Barriers to the extended role? Time, appointment systems, expertise, leadership, confidence, inter-professional relationships.
- Overcoming barriers. Two pharmacists, group practices, patients expectations, dealing with doctors.

- family considerations. What rewards out of the job, effect of attitude on what you do. Is extended role a gamble?

- Ask about spending a day, giving out questionnaires to clients.

- how did you feel the interview went, was it convenient, timing was it OK, was it enjoyable.

- What do you think of Boots etc.. and Pharmacy in a NEW AGE?

- Anything else? Profit and Profitability?

Ethical Guidelines

Introduction.

These guidelines are intended to spell out the procedures that the investigation will adopt to protect individuals who will be the subjects of the research. The guidelines are set out as answers to questions that participants might wish to ask.

What is the purpose of the research?

During the past twenty years, there have been a number of reports recommending pharmacists to become more involved in certain aspects of primary care. However there have also been reports which indicate that such recommendations have not been put into practice. The aim of this investigation is to determine the activities of pharmacists at present and to ascertain the views of pharmacists on the proposed recommendations and their implications on pharmacy practice.

What kind of information will be collected?

Data will be collected by interviews with pharmacists and by a survey questionnaire and by observation of pharmacy practice.

Who are the research team?

Hooman Ghalamkari, Research Pharmacist, Department of Social Medicine, University of Bristol. Occasional Locum Pharmacist in Bristol.

Dr Ian Harvey, Consultant Senior Lecturer in Public Health Medicine, Department of Social Medicine, University of Bristol.

The project has been funded by a Pharmacy Practice Enterprise Scheme Award from the Department of Health.

How will anonymity be preserved?

Pharmacists and the health authorities in which they practice will not be identified. Individuals will be referred to by description or pseudonyms. This will reduce the likelihood that individuals will be identified in future reports.

How will the researcher seek access to information?

The researcher will treat all relevant interviews, meetings, oral and written exchanges with participants as "on the record", unless specifically asked to treat them as confidential.

The researcher may wish to tape record and transcribe oral data e.g. interviews. If this is the case, permission will be sought from the participants.

The researcher may make contact again for clarification of taped interviews.

How will the data be stored?

Data may be entered into micro computers for data-base and textual analysis.

Participants will be given access to any identifiable personal data held on computer files according to the Data Protection Act.

All data, including data on disc, will be kept in archives at the researcher's place of work. Only members of the team will have access to these.

Data of a personal nature will not be kept longer than is necessary for the purpose of the study.

A report of the findings will be submitted to the Department of Health. The findings will also be published in Pharmaceutical and Health Services Journals.

Appendix 4 Recruitment letters

«Title» «FirstName» «LastName»
«JobTitle»
«Company»
«Address1»
«Address2»
«City». «PostalCode».

Dear «Title» «LastName»

I am a pharmacist currently engaged in a research project which is looking at the factors affecting the provision of extended services from community pharmacies. The research project is being funded by the Department of Health through the Pharmacy Practice Enterprise Scheme.

I am sure you are aware of the many reports which have recommended an "extended" role for the pharmacist. These reports however seem to have omitted how practising pharmacists feel about these recommendations. You may have completed questionnaires on this subject, but I am sure that you will agree that the options and space in the questionnaires will not have captured your exact feelings on this matter.

It is for this reason that I am writing to you to ask if you are willing to discuss these issues with me on an informal basis. The discussion will last between one and one and a half hours and will be treated confidentially. **The time taken for the discussion is accredited to provide 1.5 hours of continuing education by the College of Pharmacy Practice. In addition, one of the participating pharmacists will win two days of my time, as a Locum pharmacist, free of charge.** I have the support of Hereford and Worcester LPC in this research project, however if you would like to find out more about the project, please contact me by telephone at the above number.

I will contact you by telephone, in the next week to see if you are interested in this discussion and to arrange an appropriate time, at your convenience for the discussion. I look forward to speaking to you and meeting you in person.

Please consider participating in this discussion. Your views are very important.

Yours sincerely

Hooman Ghalamkari. (Mr)

Appendix 5 the questionnaire

Everyday community pharmacy: A survey

Department of Social Medicine
University of Bristol.
1997.

Hooman Ghalamkari. Department of Social Medicine, University of Bristol, Canynge Hall, Bristol. BS8 2PR.

Thank you for helping in completing this questionnaire.

All replies will be treated anonymously and with strictest confidence. *I have included an identification number on the questionnaire, so that if you reply, you will not receive a reminder questionnaire.*

I expect the questionnaire to take between 25-35 minutes to complete. Please try and answer all the questions. On completing the questionnaire, please use the pre-paid envelope to post it back to me. Thank you for your co-operation.

ection A. This first section asks about you and the pharmacy that you work in. If you work in more han one pharmacy, please give answers relating to the pharmacy where *you spend most time working.*

1. Where did you do your pre-registration training?

Hospital	Community	Industry & community	Industry & hospital	Community & hospital	Other, please specify
☐	☐	☐	☐	☐	_____

2. How would you describe the people who come into the pharmacy?

Mainly local residents	☐
Mainly people who work but don't live in the area	☐
Mainly town centre shoppers	☐
A mixture of people	☐

3. How would you describe the socio-economic class of the majority of the people who come into the pharmacy?

Mainly working class	☐
Mainly middle class	☐
Mixed, middle and working class	☐

4. Please complete the following table, giving details of the pharmacy staff, <u>including yourself</u>, and their employment.

Number employed on full and part time basis.

	Number of staff employed	Full time	Part time
Pharmacist(s)			
Pre-registration student(s)			
Qualified dispensing technician(s)			
Non-qualified dispensary staff			
Non-dispensary staff			

5. How old are you?

_____ years

6. Are you: Male ☐ Female ☐

Section B. This section asks about your views and involvement in the "extended" role services.

7. Have you been involved in any local "extended" role services (excluding patient medication records and residential homes services)? If not involved go to question 9. Please tick the appropriate boxes.

Health promotion services ☐

Prescribing advice services ☐

Provision of diagnostic testing ☐

Provision of compliance aids ☐

Needle exchange services ☐

Others, please specify 1)_____

2)_____

8. If you are involved in any local "extended" role services, who organised them?. (Please tick all relevant boxes, including the Other extended services that you may have been involved with.)

	Health promotion	Prescribing advice	Diagnostic testing	Compliance aids	Needle exchange	Other 1	Other 2
Your company / yourself							
The local health authority							
The local pharm. committee (LPC)							
The National Pharmaceutical Assoc.							
A university							
Local GP surgery							
Pharmaceutical industry							
Other, please specify							

9. If you wanted to set up and carry out extended services, how important <u>to you</u> would the following be? For each statement consider the scale below and place a tick in the box corresponding to your answer.

Very important	**1**
Important	**2**
Neither important nor unimportant	**3**
Not important	**4**
Of no importance at all	**5**

Please tick √	**1**	**2**	**3**	**4**	**5**
If I had additional training					
If the extended services became part of my terms of service with the health authority					
If I had more public demand and they were willing to pay for the services					
If there was a more appropriate remuneration system					
If technicians in my pharmacy were allowed to do the dispensing without supervision					
If there were more pharmacists in the pharmacy that I work in					
If I did not have to be present in the pharmacy at all times					
If there was a facilitator who could initially help to set the services up for me					
If I had access to patients' medical notes					
If it was my company's policy to implement the services					
If the local doctors wanted the services					
Other, please specify _____					
Other, please specify					

10. This question asks about your willingness to set up and provide extended role services under different scenarios.

Scenario 1. You are given what you consider adequate training for the services **but no** additional payments.

Scenario 2. You are given adequate training **and** what you consider **adequate additional** payments by the health authority as part of your terms of service.

Scenario 3. You are given adequate training and payments as part of your terms of service, but most local doctors **are not in favour** of you providing the service.

Starting with scenario 1, go down the column and rate how willing you are to provide each of the services using the scale below. On completing the column move on to scenario 2 and again rate how willing you are to provide the services, on completing this column move on to scenario 3.

Very willing	**1**
Willing	**2**
Neither willing nor unwilling	**3**
Unwilling	**4**
Very unwilling	**5**

Extended role services	**Scenario 1 Training but no payments**	**Scenario 2 Training and payments**	**Scenario 3 Training + payments but Drs not in favour**
• On every prescription advise patients of side-effects that might develop.			
• Set up and run several health promotion campaigns throughout the year.			
• For people on repeat prescriptions, collect and evaluate clinical parameters to determine the efficacy of the drug therapy e.g. record and collect blood pressure and peak flow readings.			
• Provide compliance aids to encourage adherence with drug regimen.			
• In the light of clinical information, recommend changes in drug therapy to doctors so that the drug therapy maximises the treatment.			
• Give talks to community groups on health related topics.			
• Routinely meet up with doctors to discuss drug related topics.			
• Provide a minor illness clinic, in which people make appointments to consult you on minor ailments.			
• Domicilliary visits to patients at home to monitor compliance and progress with their drug therapy.			

Please add further comments: _____

11. This question asks when you would give advice, **without being asked,** to people you deal with in the pharmacy.

Starting with scenario 1, go across the row and describe if you would give advice without being asked, to the different types of people who you deal with. On completing the row move on to scenario 2 and again describe if you would give advice, on completing this row move on to scenario 3 and then scenario 4. (Please place a number corresponding to your answer in each box, also please add any comments that you have in the boxes)

I WOULD give advice, without being asked	**1**
I MIGHT give advice, without being asked	**2**
I DON'T KNOW, but if the person asks I will give advice	**3**
I MIGHT NOT give advice at the time, but if the person asks I will ask them to wait until I am ready	**4**
I WOULD NOT give advice	**5**

Scenarios.

You are in the pharmacy that you work most in

Scenario 1.
It is a quiet period, there is no paper work to be done. Would you give advice to the following people, without being asked?

Scenario 2.
It is a very busy period, there is a long line of people in the shop waiting to speak to you. One of your assistants also seems to want to speak to you.

Scenario 3.
It is a very busy period, but now you have a large number of prescriptions to do and most people are waiting in the pharmacy for their prescriptions.

Scenario 4.
It is a busy period but now the person you are dealing with seems to be in a rush to go.

Someone who asks for a product by name	Someone who asks for a recommendation	Someone who hands over a prescription which they have not had before	Someone who hands over a repeat prescription which they have had lots of times before	Someone you notice who has just picked up leaflets on losing weight and reducing blood pressure

12. This question asks if you would intervene and contact the doctor when presented with certain prescriptions.

Starting with scenario 1, go across the row and describe if you would contact the doctor, when presented with different types of prescriptions. On completing the row move on to scenario 2 and again describe if you would contact the doctor, on completing this row move on to scenario 3 and then scenario 4. (Please place a number corresponding to your answer in each box, also please add any comments that you have in the boxes)

I WOULD contact the doctor	**1**
I MIGHT contact the doctor	**2**
I DON'T KNOW	**3**
I MIGHT NOT contact the doctor	**4**
I WOULD NOT contact the doctor	**5**

Scenarios.

You are in the pharmacy that you work most in

Scenario 1.
It is a quiet period, there is no paper work to be done and ***you get on very well with the local doctor*** *who has written the prescription. How willing are you to contact the doctor for the following prescriptions?*

Scenario 2.
It is a quiet period, but this time the prescription is ***written by a doctor whom you do not know****.*

Scenario 3.
It is a quiet period, but this time the prescription is written by ***the senior partner of the local practice,*** *whom you have had several disagreements with..*

Scenario 4.
It is a quiet period, the prescription is issued by the local practice but now ***the person who has brought in the prescription seems to be in a rush to go.***

A repeat prescription without a signature	A non-addict prescription for a controlled drug without a signature	A repeat prescription which produces a minor drug interaction on the computer	A new prescription which produces a major drug interaction on the computer	A prescription for an outmoded drug therapy to which there is a better alternative

Section C. The following questions are concerned with attitudes to your work.

13. Thinking about the drug interactions that you have come across <u>over the past four weeks,</u> how important <u>to you</u> are the factors listed below, in deciding whether to take action? Consider the scale below and place a tick in the box corresponding to your answer.

Very important	**1**
Important	**2**
Neither important nor unimportant	**3**
Not important	**4**
Of no importance at all	**5**

	Please tick √ 1	2	3	4	5
• If the patient is likely to worry about the interaction					
• If you got the impression that the patient was in a hurry or not					
• The severity of the interaction					
• If the prescriber was approachable or not					
• If you were confident in suggesting an alternative treatment					
• How busy you are at the time					
• If the prescription item you were dispensing at the time was a repeat					
• Your liability					
• If your intervention meant that you would lose out financially					
• Other, please specify _____					
• Other, please specify _____					

14. The following statements concern your advisory role. Consider your work over <u>the past four weeks</u> and indicate the extent of your agreement or disagreement with the statements below. Use the scale below and place a tick in the box corresponding to your answer.

Strongly agree	**1**
Agree	**2**
Neither Agree nor disagree	**3**
Disagree	**4**
Strongly disagree	**5**

	Please tick √ 1	2	3	4	5
• I only discuss drug dosages with doctors where there is a potential adverse effect					
• I usually inform doctors of the availability of better treatments for patients					
• I think many drug interactions and side effects are of no practical importance					
• In drug interactions I only inform the doctor of the possibility that they might occur. It is for the doctor to decide if the drug interaction is actually responsible for the patient's problems					
• If I mention my concern to patients about their medication, most will go back and tell the doctor					
• People do <u>not need to know</u> the risk and benefits of their treatment					
• I try and meet people's expectations so that they are satisfied					
• Because I don't have access to full medical notes and history I am not in a position to suggest an alternative treatment when there is a drug interaction.					
• I don't give patients all the information they request regarding problems of medication use					
• I am aware that I might tread on doctor-patient relationships when I give advice on					

Section D. The following questions are concerned with your dealings with local doctors.

15. Have you met any of the doctors in the local practices?

- Yes, most of them ☐
- Yes, one or two of them ☐
- No ☐

16. How would you say, you know the local doctors?

- Socially ☐
- Only in relation to work ☐
- Socially and in relation to work ☐

17. Please estimate, how many times **per week** you contact a patient's doctor regarding drug interactions or appropriateness of the patients drug therapy.

0	1-3	4-6	7-9	10-15	16-20	21-25	26-30	31-35	more than 35
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

18. Please estimate, how many times **per week** you contact the medical surgery regarding the patients prescriptions. e.g. missing items on prescriptions, quantities, clarification of prescriptions etc...

0	1-3	4-6	7-9	10-15	16-20	21-25	26-30	31-35	more than 35
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

19. Consider your recent dealings with local doctors and indicate the extent of your agreement or disagreements with the statements below. Use the scale below and place a tick in the box corresponding to your answer.

Strongly agree	**1**
Agree	**2**
Neither agree or disagree	**3**
Disagree	**4**
Strongly disagree	**5**

Please tick √	**1**	**2**	**3**	**4**	**5**
• I think the doctor's medical notes are more detailed than my patient medication records					
• The local doctors can not direct people away from this pharmacy					
• The local doctors can tell if I am in breach of my terms of service					
• Most of the local doctors do not know more about drugs use in patients than I do					
• I have to be careful when I tell a patient about a possible drug interaction so that they don't go back to the doctor and demand something else because I said so					
• Having faith in the doctor helps with the overal success of treatment					
• Doctors have a great deal of influence over patients					
• The local doctors know people more personally than I do					
• You can separate the decision of prescribing from the decision of diagnosis					
• The local doctors want advice on prescribing from me					
• In counselling patients I have to be careful not to make the patient lose confidence in their doctor					
• The local doctors think drug interactions are not all that important					

Section E. The following questions are concerned with your dealings with people who come into pharmacies.

20. Please estimate, how many times **per day** you give advice on **non-prescription** items.

0	1-3	4-6	7-9	10-15	16-20	21-25	26-30	31-35	more than 35
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

21. Please estimate, how many times **per day** you give verbal advice on **prescription** items, excluding information available on the label such as dosages.

0	1-3	4-6	7-9	10-15	16-20	21-25	26-30	31-35	more than 35
☐	☐	☐	☐	☐	☐	☐	☐	☐	☐

22. Consider your work **over the past four weeks** and indicate the extent of your agreement or disagreement with the statements below. Use the scale below and place a tick in the box corresponding to your answer.

Strongly agree	**1**
Agree	**2**
Neither Agree nor disagree	**3**
Disagree	**4**
Strongly disagree	**5**

	Please tick √ 1	2	3	4	5
• I have to make sure the people who come into the pharmacy are satisfied. If I don't they won't come back					
• Unless I use tact, when I refuse to sell a certain medicine, I upset the customer					
• Most people who come into the pharmacy do not have any set ideas about what medicines they want to buy					
• People expect me to keep a wide range of products in stock					
• Most people think that OTC medicines are dangerous					
• Most people who ask for medicines by name want advice from me					
• Most people who come in to have a new prescription dispensed want advice from me					
• Most people on repeat prescriptions need less advice than those on new prescriptions					
• I don't have the time to really get to know my patients					
• The majority of people just expect me to fill the doctors prescription as quickly as possible					
• People expect the doctor to have given them all the information on their treatment					
• Meeting people's expectations is not necessarily in their best interest					
• In telling patients about their prescription medicines I have to be careful not to get them worried, in case they don't take their medicines					
• In responding to symptoms, most people want me to say they don't have to go and see the doctor					

23. The next question outlines a typical scenario that you may face. Please read the scenario below and indicate which of the possible actions you would take. Please also expand on your answers in the spaces provided.

General Scenario. It is 4.30 p.m. on Saturday afternoon, a patient comes in with a prescription for a branded antibiotic. The patient explains that ***all other pharmacies in the vicinity have been contacted by phone and none of them stock this brand****. The patient has not taken the medicine before and needs to take the medicine that day.* ***You are satisfied that the request is genuine and that the patient needs to take the medicine immediately.***

I) On checking you find that you do not have the brand in stock either. ***You do have the generic alternative in stock****.*

Possible actions:	
Dispense the alternative medicine, without telling the patient	**1**
Explain the situation to the patient and then dispense the alternative medicine, if he/she agrees	**2**
Try to contact the doctor, then substitute the alternative medicine, if he/she agrees to amend the prescription	**3**
Tell the patient that the prescription must be obtained from another pharmacy	**4**
Offer to order the branded medicine for the following Monday	**5**

What would you do?(please circle your **one** answer) 1 2 3 4 5

Please give your reasons or give other action _____

II) The same general scenario, but this time ***you do not have the generic equivalent in stock either, but you do have a very similar antibiotic****, in the same class as the prescribed antibiotic with the same spectrum of action, there is no difference in the cost of the two antibiotics.*

What would you do?(please circle your **one** answer) 1 2 3 4 5

Give your reason/give other action _____

III) The same situation as in II), but the prescription is ***written by a doctor whom you get on with very well and who has approved of this type of substitution in the past****.*

What would you do?(please circle your **one** answer) 1 2 3 4 5

IV) The same situation as in II), but the prescription is ***written by a doctor whom you have had several disagreements with in the past****.*

What would you do?(please circle your **one** answer) 1 2 3 4 5

V) The same situation as in II), you try and call the doctor, but there are ***no doctors on the premises****.*

What would you do?(please circle your **one** answer) 1 2 3 4 5

VI) The same situation as in II), but the alternative antibiotic is ***£10 more expensive*** *than the prescribed antibiotic.*

What would you do?(please circle your **one** answer) 1 2 3 4 5

Section F: Finally, some details about yourself and your pharmacy. Please tick the appropriate boxes.

24. How would you describe your job title?

Proprietor ☐

Employed:

Superintendent ☐
Regional/Area manager ☐
Store manager ☐
Pharmacy manager ☐
Relief pharmacy manager ☐

Self employed:

Regular Locum ☐
Locum ☐
Occasional Locum ☐
Consultant ☐
Other: _____

25. What type of pharmacy do you work most in?

Independent ☐
Multiple with less than 5 branches ☐
Multiple with 5-20 branches ☐
Multiple with 21-100 branches ☐
Multiple with over 100 branches ☐
I work in more than 1 type of pharmacy ☐
I work in an office ☐

26. Do you work in a health centre pharmacy?

Yes ☐
No ☐

27. What is the location of the pharmacy you work most in?

City / Town centre	Residential inner-city	Suburban	Rural	Out of town shopping centre	Based in an office
☐	☐	☐	☐	☐	☐

28. How long have you been qualified?

_____ years

29. How long have you been in your present job?

_____ years

30. How many practices do your scripts mainly come from?

_____ practices

31. How many **other** pharmacies are there within half a mile of the pharmacy you work most in?

_____ pharmacies

32. How would you describe your workload in terms of OTC sales?

Very busy ☐
Busy ☐
Average ☐
Quiet ☐
Very quiet ☐

33. How would you describe your workload in terms of dispensing?

Very busy (>250prx/day) ☐
Busy ☐
Average (150prx/day) ☐
Quiet ☐
Very quiet (<50 prx/day) ☐

34. In the last three months, approximately how many hours of continuing education have you undertaken?

_____ hours

35. In the last three months, approximately how many pharmacy meetings have you attended? (e.g. those organised by the LPC, local branch and companies)

_____ meetings

36. Are you a committee member of any pharmacy organisations?

Yes ☐
No ☐

Please use the pre-paid envelope to post the questionnaire

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